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DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT, AND CERTAIN INDEPENDENT AGENCIES APPROPRIATIONS FOR FISCAL YEAR 1986

HEARINGS

BEFORE A

SUBCOMMITTEE OF THE

COMMITTEE ON APPROPRIATIONS
UNITED STATES SENATE

NINETY-NINTH CONGRESS

FIRST SESSION

ON

H.R. 3038

AN ACT MAKING APPROPRIATIONS FOR THE DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT, AND FOR SUNDRY INDEPENDENT AGENCIES, BOARDS, COMMISSIONS, CORPORATIONS, AND OFFICES FOR THE FISCAL YEAR ENDING SEPTEMBER 30, 1986, AND FOR OTHER PURPOSES

PART 3—(Pages 1343-2081)

NONDEPARTMENTAL WITNESSES

Printed for the use of the Committee on Appropriations

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DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT-INDEPENDENT AGENCIES APPROPRIATIONS FOR FISCAL YEAR 1986

WEDNESDAY, MAY 1, 1985

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 9:30 a.m. in room SD-124, Dirksen Senate Office Building, Hon. John Stennis presiding.

Present: Senators Stennis and Lautenberg.

NONDEPARTMENTAL WITNESSES

OPENING REMARKS

Senator STENNIS. I ask that the subcommittee come to order.

Senator Garn is chairman of this subcommittee of the Senate Appropriations Committee. He has illness in his family that requires his personal attention to be there with the family. I am delighted to be of such service as I can for the people that are going to testify, as well as Senator Garn and his associates.

I have a very brief statement here that I will read. This morning we begin hearing the first of 2 days of public witnesses. Since March 13, we have been taking testimony from the 18 agencies under the jurisdiction of the subcommittee.

As a result of those hearings, we have built a record as to the administration's policy and budget on literally hundreds of programs.

Between now and tomorrow evening, we will hear from 68 individuals and organizations who are taking their time to share their thoughts on how these programs might be improved and, hopefully, how we can increase the program benefits, while containing the programs costs.

Most of the witnesses are in an excellent position to advise us in these matters since they are on the receiving end of the programs and can separate what is intended from what is actually being accomplished.

In the past, the subcommittee has found the testimony presented at the public witness hearings to be of great value in our deliberations.

We are carrying on a vote battle over there on the Senate floor where the whole Government, gentlemen, is at issue, in that resolution over there, the budget resolution, so we are likely to have votes this morning sometime.

I hope we can move right along now. We just have to have a 10-minute rule here, as important as your testimony may be. I may comment on these points a little bit as we go along, but it is set out very well indeed, it seems to me.

The first witness, now, this morning is Mr. Robert Hilbert, general manager, Salt Lake County Water Conservation District, on behalf of the American Water Works Association Research Foundation.

I suggest that in each case, the witness to follow the one that is testifying be seated behind the witness, so we can proceed efficiently when called on. Your testimony is very important and will be closely examined by our committee staff and by the committee members.

In order to hear all witnesses, however, we request that you summarize your testimony as briefly as possible and any reasonable request of insertion of material into the record for consideration by the committee and its staff will be granted.

I don't want to be interrupting any of you, but sometimes those things are necessary. These are highly important matters. This is an important branch of the Government. It is true we don't have any money to appropriate right now but maybe we can gather up some. We want your program to get its part.

Do any of you want to make a preliminary statement? Have I made clear how we will proceed? I am going to ask you to limit yourself to 10 minutes and if there is additional material to go in the record, we will put it in.

All right, the first witness is Mr. Robert Hilbert, general manager, Salt Lake County Water Conservation District.

Mr. Hilbert.

Environmental Protection Agency

STATEMENT OF ROBERT HILBERT, GENERAL MANAGER, SALT LAKE COUNTY WATER CONSERVATION DISTRICT, ON BEHALF OF THE AMERICAN WATER WORKS ASSOCIATION RESEARCH FOUNDATION

ACCOMPANIED BY:
- EDWARD E. BLAKE, BURLINGTON, VT.
- RICHARD McHUGH, NEW HAVEN, CONN.
- CARL E. BECKER, LONG ISLAND WATER CONFERENCE
- WILLIAM J. SCHICKLER, LONG ISLAND WATER CONFERENCE
- THOMAS V. WHITEWIDE, LONG ISLAND WATER CONFERENCE

Mr. Hilbert. Good morning, Mr. Chairman. I am Robert B. Hilbert, general manager of the Salt Lake County Water Conservation District. I also serve as the chairman of our Utah State Safe Drinking Water Committee.

Senator Stennis. Well, we are glad to have you here. You proceed in your own way.

Mr. Hilbert. With me today, Mr. Chairman, I would like to introduce those here at the witness table. I have with me Mr. Ed Blake of Burlington, Vt., at the end of the table; and Mr. Dick McHugh from New Haven, Conn., here on my right; and from the Long Island Water

Conference, State of New York, we have Carl Becker, William Schickler, and Thomas Whiteside. We have a prepared——

Senator STENNIS. Excuse me. We are glad to have you here. We appreciate your interest in this type of work and we will proceed under the conditions that I have outlined.

PREPARED STATEMENT

Mr. HILBERT. Thank you, Mr. Chairman. We have a written testimony that we would like to submit for the record.

[The statement follows:]

STATEMENT OF ROBERT HILBERT, GENERAL MANAGER, SALT LAKE COUNTY WATER CONSERVANCY DISTRICT, ON BEHALF OF THE AMERICAN WATER WORKS ASSOCIATION RESEARCH FOUNDATION

~~Good~~ morning, Mr. Chairman and Members of the Committee. I am Robert Hilbert, General Manager of the Salt Lake County Water Conservancy District and Chairman of the State of Utah's Safe Drinking Water Committee. I am a past-president of the American Water Works Association and I am here today as spokesman for the AWWA Research Foundation. With me are Mr. Edward E. Blake of Burlington, VT, Mr. Richard McHugh of New Haven, CT and from the Long Island Water Conference, Mr. Carl E. Becker, Mr. William J. Schickler and Mr. Thomas V. Whiteside.

The two parts of our presentation to you today are in answer to two questions: Exactly what has the Committee--indeed, the country--received in return for the two million dollars you awarded us during the past two years? Where is the water utility industry heading in the matter of its own research program?

Concerning the return on the federal investment in our program, I have significant and positive news to report. The industry has more than matched your award: the two million dollars in federal funds are purchasing four million dollars worth of research. And this does not include all the Foundation's administrative and staff costs in support of the program, nor the contributed time and technical expertise of about two hundred engineers, chemists and managers involved in planning and monitoring the research projects.

As predicted, the stimulus of federal dollars has attracted local utility interest in research. In fact, what has happened is nothing short of a remarkable cooperative effort being forged among the utility industry, universities, EPA, and even state governments. The majority of the projects funded by the Research Foundation are being carried out by consortia: typically a utility and a university, sometimes a consulting engineering firm is involved, sometimes five or six utilities. There is just no doubt that water utility involvement and interest in research is on the upswing.

Foundation projects are underway in all parts of the United States. A project on rehabilitating old distribution systems involves Philadelphia, Denver, Louisville, the eastern side of the San Francisco Bay, Cincinnati, and Kenosha. Corrosion projects extend into seven states. In New Orleans we're supporting the development of a model to predict water quality problems in the Mississippi so that water treatment plants can be alerted to make changes in response to specific problems. In Colorado, California and Washington, we're looking at detection and control methods for Giardia, a nasty and elusive disease-carrying organism. Massachusetts, Michigan, Utah are sites of other projects, all of which are listed in an attachment to the statement submitted to you. That list also includes descriptions of fifteen of the new projects we'll be awarding this summer, including an important study of the regrowth of bacteria in water distribution systems. I also want to mention that the Foundation has completed and published a two-volume report on technologies to treat organic chemical contaminants in drinking water--a project that is helping utilities throughout the country. Clearly, the seed money provided by the Committee is now demonstrating the value of coordinated research projects. In turn, this is strengthening the commitment of water utilities to an industry-sponsored, industry-directed R&D program. This leads directly to the second part of our statement.

For the past two years the Research Foundation has been working quietly behind the scenes, talking to utility managers, industry leaders, and representatives of other utility-related organizations to put together a workable plan for funding our own national research program on a much larger scale. This effort has been received with solid support at the leadership level. Within AWWA, the Board of Directors has formally approved the concept of the proposed plan and the Association's Water Utility Council has endorsed it in detail. The Association of Metropolitan Water Agencies and the National Association of Water Companies (the investor-owned utilities) have pledge their support of our plan.

Simply put, we plan to undertake a voluntary assessment by local water utilities, using a formula based on the volume of water produced. The assessment rate will be low and its effect on the consumer will be almost negligible--perhaps ten or fifteen cents per year. Our schedule calls for us to have the assessment program in place by 1988, with a ten million dollar annual budget targeted for 1990.

To provide for 1986 and 1987, our interim plan brings us back to this Committee. We are here to ask that the Committee provide a third and final million dollars to the Research Foundation to enable us to sustain our research momentum while organizing the assessment program for 1988. In the coming fiscal year we shall do more than match your appropriation dollar for dollar as we have done during the past two years; we have committed ourselves to try to generate two dollars for every federal dollar. For 1987, we are aiming at a three million dollar budget with no federal help whatsoever.

In other words, the AWWA Research Foundation and the three industry groups I've mentioned are trying to raise a second million dollars this year, in addition to our regular dues and other research funds. I cannot say that we have the second million in hand but I can tell you, Mr. Chairman, that the intensity of our effort and the response so far convince me that we shall reach our goal. Furthermore, the utilities that have responded to our proposal have agreed to double their contributions in 1987.

We need one more year of help from you for two reasons: first, to ensure that our level of effort can increase somewhat, thus expanding the scope and impact of our research program and demonstrating its practical value to more and more communities. Second, the symbolic value of Congressional support is a great asset to us, for it says that you recognize the importance of what we are trying to do and, as a matter of national interest, you want to help us get established.

Our industry should have its own self-supported research program and we should not be dependent upon federal research and development as we have in the past. However, Mr. Chairman, building a major, national research program with local municipal funds and with funds from privately-owned companies is not a simple, overnight task. Nevertheless, we have come a long way since we first approached you for help and we have kept our word to you and delivered matching funds for two years. We shall do even better than that in this third and final year, surpassing the federal contribution and moving toward true self-sufficiency. And during these next two years we shall be working toward the establishment of the ongoing assessment program involving, initially, several hundred water utilities, eventually all but the smallest of them.

We have one more point to make, Mr. Chairman, and it concerns the drinking water research budget of the Environmental Protection Agency. As the Agency enlarges its list of suspect contaminants in drinking water, this is no time for its research budget to be cut back. Regulatory research in the matter of water safety continues as a national priority. What we need is more and better research, especially health effects research, by the government. Our industry and indeed the public at large should be able to have confidence in the data upon which new regulations are based. That confidence is eroding and will erode even further if EPA cannot fund studies of the highest quality.

It is not possible to have less research and more regulations at the same time. Our fear is that the drive for regulating more and more contaminants is so strong that we shall see wave after wave of new Maximum Contaminant Levels and monitoring requirements based not on hard data but on the slimmest of facts and the fattest of suspicions. The nation deserves better; the stakes are too high. We earnestly urge the Committee to maintain or even increase previous levels of funding for drinking water research.

Thank you, Mr. Chairman, for the opportunity to present these remarks and requests to the Committee. My colleagues and I will be pleased to answer any questions you or the Members may have.

SUMMARY

Recent and Current Research Projects

and

1985 Research Agenda

of the

AWWA RESEARCH FOUNDATION

This is a listing of most of the Foundation's research projects, 1982-84, plus the projects approved for funding in 1985. Not all AWWARF projects are included here, e.g., Water Reuse Symposia, Workshops on Drinking Water Regulations, Health Effects Seminars, regular publications, etc. The title of the project, the research contractor, and a short description of the project is given in the following paragraphs.

CURRENT PROJECTS

1. **CONTROL OF ALGAE IN RESERVOIRS** by the Casitas (California) Municipal Water District. The purpose of the project is to identify and document physical and chemical technology for the control of algae in drinking water reservoirs, with particular emphasis on the use of copper.

2. **SURFACE WATER QUALITY SCREENING MODEL** by the New Orleans Water and Sewer Board, with consultants. This project is studying the effects of upstream discharges on the water quality at downstream intakes. Current water quality data related to industrial outfalls and streamflow data for the lower Mississippi River will be used to evaluate the predictability of downstream water quality. The results will assist water utilities to understand when water quality changes will occur and thus enable them to modify treatment processes to maintain removal efficiencies.

3. **TRICHLOROETHYLENE REMOVAL** by the North Pennsylvania Water Authority. This study is investigating the removal of volatile organic compounds from ground water supplies by in-well aeration. Preliminary studies at Lansdale, PA indicate that air injection (injecting air directly to pump discharge), air diffusion (sparging air in well directly above pump) and air lifting (pumping water with air) are all effective methods of reducing the concentrations of volatile organic compounds.

4. **IDENTIFICATION AND TREATMENT OF TASTE AND ODOR PRODUCING COMPOUNDS** by Drexel University, City of Philadelphia, Philadelphia Suburban Water Co., and a French water company. This project is designed to identify specific compounds and groups of compounds that produce tastes and/or odors in drinking water by employing a new sensory panel flavor profile analysis coupled with instrumental analysis (GC/MS). Treatment methods for the removal of these compounds are identified through bench-scale testing. A manual of guidance will be developed.

5. **MANGANESE TREATMENT USING SODIUM SILICATE AND CHLORINE** by The University of Tennessee. Previous work by the researcher on the stabilization of iron with sodium silicate and chlorine suggested that manganese could be treated by the same process. Laboratory studies, using a model ground water containing commonly found parameters will determine if this treatment is feasible.

6. **STUDY OF TREATMENT PRACTICES FOR REMOVAL OF *GIARDIA LAMBLIA* CYSTS** by the University of Washington and various utilities. The primary objective is to investigate and evaluate full-scale water treatment plants operating under ambient conditions to determine their ability to remove *Giardia lamblia* cysts and cyst-size particulates. Field studies in watersheds known to have *Giardia* contamination will include treatment plants using rapid sand, dual media, and diatomaceous earth filtration.

7. **FILTRATION OF *GIARDIA* CYSTS UNDER TREATMENT PLANT CONDITIONS** by Colorado State University and Empire, CO. This project has several objectives: to delineate conditions that have contributed to or permitted passage of *Giardia* cysts through the rapid rate filtration process; to ascertain whether recent pilot-scale research findings about rapid rate filtration are applicable to full-scale operation; and to monitor start-up and operation of a newly constructed slow-sand treatment facility located in a watershed known to contain a persistent source of *Giardia* cysts.

8. **THE USE OF OZONE AS A PREOXIDANT IN DRINKING WATER TREATMENT** by the City Bay City, MI and the University of Michigan. This project will evaluate, through both pilot plant and full-scale studies, the efficacy of ozone as a preoxidant in drinking water treatment for the control of TOX, TOC, THMFP, plus the actual THM development. In addition, ozone's ability to promote microflocculation and turbidity removal under varying water quality conditions will be evaluated.

9. **CHLORO-ORGANIC WATER QUALITY CHANGES RESULTING FROM MODIFICATIONS OF WATER TREATMENT PRACTICES** by the Louisville, KY Water Company. TOX and THM levels will be measured in water samples from six plants using different sources and treatment. Also, a pilot plant system will be used to extensively evaluate processes and process variables. Using this information, the water treatment practice which minimizes both TOX and THM levels will be developed. Finally, the mutagenic activity (Ames Test) of concentrates from waters producing various levels of THM and TOX will be evaluated as a preliminary indication of the significance of the TOX and THM data.

10. **DEVELOPMENT OF A PROTOCOL FOR THE SELECTION OF COAGULANT/FILTRATION** AIDS by the University of Delaware. This project will evaluate existing and test protocols for evaluating coagulant aids (primarily polymers) to develop a single modular protocol that may be implemented at various utilities of all sizes and complexity.

11. **RECOVERY OF VOLATILE ORGANIC CHEMICAL VAPORS FROM AIR STRIPPING TOWERS USING GAS PHASE ADSORPTION** by The City of Wausau, WI and Michigan Technological University. A pilot plant for an air stripping solvent recovery process will be built at the City of Wausau's water treatment plant. Operating data will be collected for a six month period and analyzed using mass transfer models for air stripping and gas phase adsorption. Using these models and pilot data, specifications will be formulated for a full-scale plant and preliminary cost calculations will be made.

12. **DEVELOPMENT OF A RAPID HALOFORM FORMATION TEST FOR WATER TREATMENT PLANT CONTROL** by Texas A & M University. The purpose of this effort is to evaluate a new test utilizing the formation of iodoform or bromoform as an indicator of THM formation potential. This project was successfully completed and the final report is being prepared.

13. **VALIDATION OF THE HALOFORM TEST AS AN INDICATOR OF THE THMFP.** This project will involve an independent laboratory evaluation of the rapid haloform test and a utility-based field evaluation of the practicality, variability and accuracy of the test procedures.

14. **IMMUNOFLUORESCENCE TECHNIQUE FOR DETECTION OF GIARDIA CYSTS IN DRINKING WATER** by the California Department of Health Services. The purpose of this project is to provide a rapid, cost-effective, and practical technique for isolating and identifying *Giardia lamblia* cysts in drinking water. Using an immunofluorescence technique, field studies were conducted at several treatment systems to evaluate the sensitivity of this method; indications are that the technique is 10 to 100 times more sensitive than standard methods.

15. **EVALUATION OF SURROGATE ORGANIC PARAMETERS AS AN INDICATOR OF WATER QUALITY** by the University of Massachusetts. This review is primarily a statistical evaluation of data to determine if significant correlations exist beteen surrogates and organic micro- pollutants. The project will identify any surrogates that can be used by utilities nationwide in evaluating plant performance.

16. **DEVELOPMENT OF REALISTIC REPLACEMENT/REHABILITATION CRITERIA FOR DISTRIBUTION SYSTEM COMPONENTS OF WATER UTILITIES** by the City of Philadelphia and consultants, with five other participating utilities. The objective of the project is to provide predictive measures for estimating and scheduling the rehabilitation, replacement or repair of distribution system components. Participating utilities include Philadelphia, Louisville, Kenosha, Cincinnati, Denver and East Bay MUD.

17. **STATE-OF-THE-ART CORROSION REPORT**, an internal project by the Research Foundation in cooperation with West Germany. The development of a state-of-the-art report on internal corrosion of water supply systems through a joint effort by the RF and West Germany's Engler-Bunte Institute. The report will be used as the text for a Sunday Seminar at the Washington AWWA Annual Conference in June 1985.

18. **WATER QUALITY DETERIORATION IN DISTRIBUTION SYSTEMS** by Consumers Pirnie Utilities Service Company. This project will evaluate up to six different water distribution systems with differing water qualities to determine the reasons for and the extent of water quality deterioration in these systems with suggested methods to minimize adverse quality changes. Corrosion rates, corrosion by-products, heavy metals, dissolved gases and micro-biological parameters will be examined.

19. **WATER QUALITY CONDITIONS IN DISTRIBUTION SYSTEMS** by the Knoxville Utilities Board and the University of Tennessee. Coupon testing devices will be placed in the distribution system, as well as the Knoxville Utilities treatment plant. In this way the qualitative relationship between a continuous flow lab-scale corrosion monitor at the plant and the corrosion characteristics measured in the system can be evaluated for several corrosion inhibitors.

20. **BARRIERS TO THE INTRODUCTION OF NEW PRODUCTS AND TECHNOLOGIES INTO WATER SUPPLY SYSTEMS** by the Utah State Department of Health and Wade Miller Associates. This is a survey of state drinking water agencies, selected manufacturers, and consulting engineers to identify institutional barriers to the introduction of new treatment processes, materials, chemicals, and equipment. Recommend approaches to facilitate the introduction of new technologies and materials while maintaining wholesome water quality.

21. **INSTITUTIONAL ALTERNATIVES FOR SMALL COMMUNITY WATER SYSTEMS** by Kelley, Gidley, Blair & Wolfe. Information from literature searches, questionnaires and interviews with state regulatory officials will be

used to develop a manual on institutional alternatives for small water systems. This document is meant for legislators, county officials, planners and public interest groups that are involved with regulating and controlling the proliferation of small water systems.

22. **WATERQUEST** is an internal project by the Research Foundation. It involves the continued development of a central source of information on unpublished water supply research and development--recent, current and planned--for the purpose of coordinating research activities among water utilities; avoiding duplication of effort; and saving time, money and effort for the users. In a related project, five-year plans have been requested from the approximately 200 largest utilities for the purpose of producing a report so that they can share information on the various projects they will be involved in during that time period.

23. **JOINT REPORT ON SURROGATE ORGANIC PARAMETERS** by the AWWA Research Foundation and KIWA (The Netherlands). This report will provide a comprehensive discussion of both chemical and biological surrogates for organic micro-pollutants in drinking water, including analytical techniques, use in operational control and monitoring, research goals and needs, and the use of surrogates in treatment plant design. The report will be written by two committees of experts, one American and one Dutch.

24. **EMERGING TECHNOLOGIES** was a project completed by the AWWA Research Foundation and various European groups. The purpose of the project was to identify emerging water supply technologies in the U.S., Canada, and Western Europe. Contacts were arranged in each country and reports were gathered into a workbook as an aid in research planning.

25. **BLOOD PRESSURE/SODIUM STUDY** by the University of Massachusetts. This project will evaluate the effect on blood pressure as a result of a decreased consumption of sodium in drinking water. The Town of Reading, MA will use a new treatment plant that will reduce sodium levels from 120 ppm to 35 ppm, providing an excellent opportunity for this study.

26. **DRINKING WATER ADDITIVES (THIRD PARTY CERTIFICATION)** is an internal Research Foundation project, with NSF and states. This project is a joint effort between AWWARF, National Sanitation Foundation (lead organization), and the State agencies in response to an EPA request for proposals. The program is to evaluate direct and indirect drinking water additives against an established protocol, and maintain an informartional listing of all acceptable products.

27. **MODE OF ACTION OF CHLORAMINES** by Johns Hopkins University. This project is directed at determining the mechanisms of inactivation of combined chlorine on bacteria. With many utilities now using combined chlorine rather than free chlorine, it would be useful to know the mechanisms of bacterial disinfection so that treatment practices can be improved.

28. **REPORTS ON VOC REMOVAL AND GAC OPERATIONAL EXPERIENCE**, a joint project completed by the Research Foundation and KIWA. Two comprehensive, state-of-the-art reports were developed by an international group of experts. Now published and available, the reports cover VOC occurrence and removal technologies and the Dutch experience with eight treatment plants using GAC.

1985 RESEARCH AGENDA

The Board of Trustees of the AWWA Research Foundation (AWWARF) has announced fifteen new research topics for which it is seeking proposals, and asking for unsolicited proposals as well. Requests-for-proposals are being written on the fifteen new projects and will be available to all interested parties in March 1985. Proposals will be due in mid-May, and the winners will be announced following the AWWA Annual Conference in June.

The selected projects are:

29. **Bacterial Regrowth in Distribution Systems.** This study will evaluate the use of predictive bacteriological models and procedures that can be used to monitor the effect of changes in treatment practices on water quality deterioration, especially bacterial regrowth.

30. **Disinfectant Residuals.** AWWARF is seeking a review of all residual measurement techniques for free chlorine, combined chlorine, ozone, and chlorine dioxide, with special attention to interferences. Subsequent work may be required to identify promising alternative methods, but this first-phase study is limited to an objective and scientific evaluation of the current techniques.

31. **Unaccounted-For Water.** In this study the researcher is to document the advantages and disadvantages of methods for locating and reducing water losses, and develop a guidance manual on standardized terms and methods to reduce unaccounted-for water.

32. **Plastic Pipe Practices.** This project will critique currently available information related to migration of organic chemicals through plastic pipes, and review current industry practices related to use of the plastic pipes and gaskets.

33. **Economics of Internal Corrosion Control Practices.** This study will evaluate which corrosion control practices have been found to be most effective in reducing corrosion rates. The cost of water main rehabilitation versus more extensive corrosion control will be considered, as will the effect of utility corrosion control practices on copper or galvanized service connections.

34. **Scale Formation and Inhibitor Chemistry.** This project will study the formation and nature of scales in distribution systems, the relationship of scales to water quality, scale control techniques, and other factors.

35. **Small System Technology.** Under a general request for proposals, AWWARF is looking for projects concerning innovative technologies specifically designed for use by water systems with a service population of less than 3,000.

36. **Case Studies of Disinfection Practices.** AWWARF is seeking an evaluation of a specific problem or problems that water utilities have experienced in modifying disinfection practices or methods.

37. **Evaluate GAC Substitution for Sand.** AWWARF is requesting a comprehensive scientific evaluation of the full-range performance of granular activated carbon when it is substituted for sand in existing filter beds.

38. **Constant Versus Declining Rate Filters.** This study will conduct a full-scale comparison of constant-rate versus declining-rate filtration under a variety of water qualities and operating conditions.

39. **Control of Aluminum Precipitate.** This research project will determine what causes aluminum to precipitate in the distribution system, and will develop methods to prevent this occurrence.

40. **Sludge Disposal Practices.** This three-phase project will (1) identify and categorize those inorganic and organic wastes that might be considered hazardous or toxic under current laws and regulations, (2) develop a state-of-the-art report on current acceptable alternatives for the treatment of sludge, and (3) document effective treatment and disposal techniques for hazardous and toxic sludge.

41. **Evaluate Dosage Control.** This project will evaluate the effectiveness of "streaming current detectors" in monitoring and controlling coagulation under a variety of water quality conditions and in several treatment processes.

42. **Filter-to-Waste Procedure.** A study will evaluate the filter-to-waste procedure and how its elimination from normal operational routine affects water quality. Current concerns with the elimination of this procedure include the passage of Giardia cysts, asbestos fibers, bacteria, and turbidity particles.

43. **Survey of Public Attitudes and Concerns.** A survey of public attitudes toward water quality, treatment, drinking water standards, pricing, and other topics will help water utility managers understand and respond to current consumer concerns.

44. **Unsolicited Proposals.** The Foundation has set aside funds for unsolicited proposals. This is done to encourage innovative projects that would benefit the water utility industry.

Additional information on any of these projects can be obtained by contacting the Research Foundation. More complete project descriptions and updates are periodically printed in the Research Foundation's Water Research Quarterly.

STATEMENT HIGHLIGHTED

Mr. HILBERT. I just have a few highlights that I would like to leave with you and also leave some time for the other gentlemen at the witness table, if they do have some suggestions or remarks to give to you and respond to any questions that you may have.

Senator STENNIS. Well, I see you know what you are doing. You understand the situation. You just proceed in your own way.

Mr. HILBERT. We are back here before the committee, Mr. Chairman, seeking our third and final appropriation for the American Water Research Foundation, through EPA, which is $1 million.

The $2 million received in the previous years has acted as seed money. And I can tell you, Mr. Chairman, the seed money is working. Those dollars contributed—that were appropriated to EPA, have been matched with moneys from the American Water Works Association members.

So the $2 million that we have received through the Federal appropriations have been matched with $2 million and there is now, ongoing throughout the United States, $4 million of research on drinking water matters.

That research is continuing or going on through about 26 States in the country and consisting of about 28 different projects looking at the drinking water problems that water utilities face in the United States.

There are some 15 to 20 additional projects that are waiting for funding and it is anticipated that the $1 million that we are requesting now for the next fiscal year to be matched with our $1 million, will have some 50 research projects ongoing throughout the country.

This will be our last request of the committee for $1 million. The utilities, through the American Water Works Research Foundation, developed a program where we will have a self-funding program.

Those moneys will come forward through a volunteer assessment program in which the utilities will have received a certain dollar amount—I say "dollar amount"; it will be a few cents per 1,000 gallons of water distributed by the utility.

Those moneys will come forward, as they have done in the last 2 years, only in greater amounts in 1986 and 1987, to where in calendar year 1988, it is anticipated that the research foundation will have moneys from the volunteer assessment to carry on a much larger research program than is now on going with the $2 million we have been receiving, half from the Federal Government and half from our own utilities.

So we are here to ask for the last and final appropriation from the committee, and beginning a year from now, will be totally on our own with the utilities supporting their own research program.

We appreciate the seed money that the committee has offered to the research foundation over the last year, last 2 years, and look forward to the final appropriation of $1 million coming from the next fiscal year.

As I mentioned, research is going on throughout the United States on the basic drinking water problems that the utilities are facing.

And we look forward to this final appropriation and our own volunteer program getting on its own feet a year from now and, hopefully, by the year 1990 we will see the volunteer program reaching about $10 million a year, much larger than it is now, totally supported by the utilities throughout the United States.

Even though the utilities, through the Water Research Foundation of the American Water Works Research Foundation will conduct their own research, we feel it important that EPA be funded adequately to carry on their research.

As you know, they are a regulatory agency and their research must deal with those issues that are based on the regulations that EPA promulgates through the Federal Congress.

We feel that their program should be supported and not be reduced, as it has over the last few years. Their program goes along with our program. There is no duplication.

Certainly, we would be doing research that is peculiar to the drinking water problems that we see. And EPA's research is based on the regulatory program that EPA administers.

So we will leave you with those highlighted comments, Mr. Chairman.

I would like to ask the others at the witness table if they might have a few remarks, since they have traveled long distances, got up early this morning and we are starting, maybe, with Mr. Blake at the far end of the table, if you will.

Senator STENNIS. Well, gentlemen, as I have said, we are delighted to have you here and we want to hear you. I hate to talk about time limitations, but it is just necessary, you understand.

If we don't have people that are willing to take an interest in these matters like you are, we would be running out of gas pretty soon, I think.

I have been on the Appropriations Committee a good while and on the Public Works Subcommittee ever since I have been a member of the full committee. I consider it most important work. It has been my privilege to deal with that.

Mr. HILBERT. Mr. Chairman, could Mr. Blake just say a few words?

Senator STENNIS. All right, proceed.

Mr. BLAKE. Mr. Chairman, I want you to know that the small utilities across the country are supporting and are involved heavily in this program.

We are contributing and it is a national program. We really appreciate the past effort of your committee in supporting this research. Certainly, it is needed and it is done on an industry level.

My message this morning is that the smaller utilities are heavily involved and we are trying to solicit a final supporting gesture from you people to help us command our own destiny regarding the important process of our water supply.

Thank you.

Senator STENNIS. All right. Thank you very much.

All right, just proceed, gentlemen, in your order at the table.

Mr. MCHUGH. Mr. Chairman, my name is Richard McHugh. I am executive director of the regional water authority in New Haven, Conn.

The only thing that I would like to add is the maintenance of water quality in our water system is one of the biggest problems that is facing the water utilities. There are probably very few utilities that are not faced with some water quality problem.

Research that is going on and that is planned to be going on is addressing these problems. It is seeking practical answers to real problems. It is not esoteric research that will just be written up in university manuals. The research that is being done and planned to do, will solve ongoing problems and we heartily support it in the State of Connecticut.

Senator STENNIS. All right. Well, thank you again, for being here and for the interest that you have shown.

Mr. BLAKE. Thank you very much, Mr. Chairman. I appreciate the committee's attention to our problems in the past years. I look forward to the appropriation for next year, thank you very much.

Senator STENNIS. All right, gentlemen. Well, you started out talking about $1 million or $2 million, I knew you weren't going to get very far on that small sum of money, but you have a real plan ahead. Good wishes. I appreciate what you are doing.

You mentioned Utah there. What is your average rainfall out there?

Mr. BLAKE. Senator, it is about 12½ inches of rainfall and snow. In your State, you have that much in a day, sometimes.

Senator STENNIS. That is about right.

Mr. BLAKE. I wish you could ship some of it out to us. It is the second driest State in the Union.

Senator STENNIS. I knew you were on that end of the line. You know how to use what water you have, though. I am aware of that. Thanks again.

Mr. BLAKE. Thank you, sir.

STATEMENT OF WILLIAM H. FUNK, PRESIDENT, NORTH AMERICAN LAKE MANAGEMENT SOCIETY

Senator STENNIS. All right, gentlemen, our next witness is Mr. William Funk, President of North American Lake Management Society.

Mr. FUNK. Yes, sir.

Senator STENNIS. All right, you heard what I said to the other witnesses. Now, you proceed in your own good way, please.

Mr. FUNK. I will keep you on time.

Senator STENNIS. All right.

Mr. FUNK. Mr. Chairman, members of the subcommittee and staff, my name is William H. Funk. I am president of the North American Lake Management Society. For short, we call it NALMS.

This is a national organization made up of citizens, scientists, lake associations, and water pollution control professionals that are concerned with poor water quality in our Nation's lakes and reservoirs.

I am also director of the State of Washington Water Research Center at Pullman, Wash. And I have a research background in lake and reservoir management.

For the past 4 years, NALMS has testified before this subcommittee in support of EPA's Clean Lakes Program under section 314 of the Clean Water Act and on the effectiveness of techniques for restoring and protecting lake quality.

Last year we also stressed the need for funding the national program to control nonpoint source pollution because nonpoint sources are the most significant contributor to lake problems.

This year, we want to stress not only the need for funding section 314 on the nonpoint pollution controls but also the EPA and State programs are not achieving the needed protection and restoration of lakes and reservoirs and we see the situation getting worse.

A recent NALMS survey of State agencies found 10 times more degradation in 1983 than in 1970. The States reported impaired use in over 4,000 lakes and reservoirs because of water pollution.

In addition, the STEP Program conducted by ASIWPCA found that four times more lake waters had degraded in quality than have improved in the period 1972 to 1982. A total of 1.7 million acres of lake and reservoir water were reported to be degraded over the decade.

The public is disappointed in this water pollution problem, and it is getting worse despite the Clean Water Act.

One thing that concerns us is that the administration is zeroing out, in fiscal 1986, essential EPA activities that could reverse this trend—the degradation and some of the public health damage that it causes.

NALMS recognizes that this subcommittee is a trustee of America's waters, is responsible for ensuring that the public funds are spent wisely and definite improvements in water quality result from these appropriations.

This subcommittee determines which programs receive funding and at what level funding should be. Today, NALMS is asking you to begin reversing the trend toward deteriorating lakes and reservoirs in the United States.

Today, we would like to identify issues of concern in EPA and State activities relating to lake water quality and provide seven recommendations to the subcommittee to help resolve these issues.

The following seven recommendations are made: One, is to provide a level of appropriations on the order of $15 to $30 million annually for 5 years for EPA section 314 Clean Rights Program, to allow States time to develop their own self-supporting State lake programs. Phase I and phase II projects should specifically be mentioned as being eligible.

Recommendation 2: Appropriations of $15 to $20 million should be provided under section 106 for implementation of State nonpoint water pollution control programs targeted to priority watersheds with impaired use caused by nonpoint source pollution.

Recommendation 3: The committee report should require EPA to submit a report to Congress on the status and trend of lake water quality nationally. The nature and extent of pollution loading from point and nonpoint sources and resulting lake impairment should be defined.

Recommendation 4: The committee report should require completion by July 1, 1986, of the Lake Restoration Manual begun by EPA in 1984, with appropriations under section 104H of the act.

There should be an accounting of almost $4 million spent in research funding appropriated for the work leading to the manual.

Additional research is needed to develop less expensive restoration and protection methods and to document restoration effectiveness.

Recommendation 5: At a minimum, 25 FTE should be provided in EPA's salaries and expenses appropriation to implement the recently completed nonpoint source policy adopted by the EPA.

Recommendation 6: At a minimum, five FTE should be provided to implement the section 314 program and to promote deposition of the effective lake restoration and protection programs by the States.

Recommendation 7: NALMS supports appropriations under section 106 for implementation of State ground water protection programs in areas vulnerable to contamination.

This completes my verbal testimony and I would urge the members and staff to peruse our written testimony that is provided with case histories and case comments.

[The statement follows:]

STATEMENT OF DR. WILLIAM H. FUNK, PRESIDENT, NORTH AMERICAN LAKE MANAGEMENT SOCIETY

Mr. Chairman and members of the subcommittee, my name is William H. Funk and I am president of the North American Lake Management Society (NALMS), a national organization made up of citizens, scientists, lake associations, and water pollution control professionals who are concerned about poor water quality in our Nation's lakes and reservoirs. I am also director of the State of Washington Water Resources Center at Washington State University and I have a research background in lake and reservoir management.

For the last 4 years, NALMS has testified before this subcommittee in support of funding for EPA's Clean Lakes Program under section 314 of the Clean Water Act and for additional research on effectiveness of techniques for restoring and protecting lake quality. Last year we also stressed the need for funding a national program to control nonpoint pollution because nonpoint sources are the most significant contributors to lake pollution. This year we want tostress not only the need for funding section 314 and funding nonpoint pollution control efforts, but also that EPA and State programs are not achieving the needed restoration and protection of lakes and reservoirs and the situation is getting worse. A recent NALMS survey of State agencies found 10 times more degraded lakes in 1983 than in 1970, and the States reported impaired use in over 4,000 lakes and reservoirs because of pollution. In addition, the STEP project conducted by ASIWPCA found that four times more lake waters had degraded in quality than have improved in quality from 1972 to 1982 -- a total of 1.7 million acres of lake and reservoir waters were reported to be degraded over that decade. The public is disappointed that this water pollution problem is getting worse despite the Clean Water Act and that the Administration's zeroing out in FY 1986 essential EPA activities that could reverse this trend of degradation and the economic and public health damage it causes.

The subcommittee is a trustee of America's waters; it is responsible for ensuring that public funds are spent wisely and that concrete improvements in water quality result from its appropriations. This subcommittee determines which programs receive funding and what the level of funding should be. Today, NALMS is asking you to begin reversing the trend toward dirty lakes and reservoirs in America. Today we would like to identify issues of concern in EPA and State activities relating to lake quality and we wish to provide recommendations for this Subcommittee to resolve these issues in the public interest.

SUMMARY OF NALMS RECOMMENDATIONS

o Level appropriations on the order of $15-30 million should be provided annually for 5 years for EPA's section 314 Clean Lakes Program to allow States time to develop their own self-supporting State lake programs. Phase 1 and Phase 2 projects should specifically be mentioned as being eligible.

o Appropriations of $15-20 million should be provided under section 106 for implementation of State nonpoint pollution control programs targeted to priority watersheds with impaired use caused by nonpoint sources.

o The Committee report should require EPA to submit a report to Congress on the status and trend of lake quality, nationally. The nature and extent of pollution loading from point and nonpoint sources and resulting lake use impairment should be defined.

- The Committee report should require completion by July 1, 1986 of the lake restoration manual begun by EPA in 1984 with appropriations under section 104(h) of the Act and an accounting of the almost $4 million in research funding appropriated for the work leading to the manual. Additional research is needed to develop less expensive restoration and protection methods and to document effectiveness.
- At a minimum, 25 FTE should be provided in EPA's salaries and expenses appropriation to implement the recently completed Nonpoint Source Policy adopted by the EPA Administration.
- At a minimum, 5 FTE should be provided to implement the section 314 program and to promote adoption of effective lake restoration and protection programs by the States.
- NALMS supports appropriations under section 106 for implementation of State ground water protection programs in areas vulnerable to contamination.

OUR LAKES ARE BEING LOST

This subcommittee is aware that the lakes and impoundments of this Nation are vital not only for their ecological functions in supporting fish and wildlife but also for the economic basis -- measured in the billions of dollars -- to many local, State and National businesses. Unfortunately, our Nation is losing the battle to keep its lakes clean and the damage may be irreversible in many cases because of the high cost of cleanup. Last year we reported the results of a survey of State agencies we undertook for EPA on lake quality problems. About 10 times more problem lakes were found in 1983 than in 1971 and 40 times more lakes -- 12,000 -- were reported by the States to be suffering from nuisance growths of weeds and algae. More than 4,200 lakes were identified with impaired use that adversely affects more than 4 million acres of lakes and impoundments. The NALMS survey found that we are also losing the battle against toxic substances. From 7 contaminated lakes 10 years ago, the 38 responding States now have 120 lakes contaminated with toxics. The States indicated that about 5000 lakes were suffering from excessive levels of sediment. We provided specific examples of polluted lakes and reservoirs in States that many of you on this subcommittee represent. A summary report of this survey which was published in the Water Pollution Control Federation Journal is included with this testimony for the Subcommittee's use.

This degraded condition of our Nation's lakes and reservoirs, especially the toxic contamination and potentially irreversible eutrophication problems, has the citizens very concerned and many of you have heard from your constituents about this problem. However, an even more alarming picture was painted by the results of the ASIWPCA STEP project released last year. In that EPA-funded survey of state water pollution control agencies, almost 2 million acres of lakes were reported to have degraded in quality in the decade since 1972. This is 4 times the amount that improved in quality in the decade since 1972 when the Amendments to the FWPCA were adopted by Congress. Because provisions of the Clean Water Act relating to lake protection and restoration are not adequately being implemented, lake and reservoir pollution is getting worse and this deserves the immediate attention of the subcommittee.

EPA PROPOSES NO FUNDING FOR THE CLEAN LAKES PROGRAM

In previous years we described how EPA's Clean Lakes Program under section 314 of the Act focused on implementing lake restoration and lake protection practices rather than just studying problems. Over 87 percent of the total funding has been devoted to implementation, while 7 percent was spent on diagnostic-feasibility surveys. The program is a high-yield, low cost water quality improvement program that has been effective in getting local, State, and Federal interests to cooperate in solving specific water quality problems. The program is voluntary and must be initiated by local or State interest. The 50-50 matching grant nature of implementation projects ensures active participation by requiring local and/or State investments in the project. An EPA audit of the costs and benefits of the Clean Lakes Program found it to be one of the more cost-effective government programs in existence. For every dollar expended by the Federal government, eight dollars in benefits were returned to the public. Unfortunately, since 1981 continuation of this program has been in jeopardy with budget reductions and efforts by EPA to redirect funding for section 314 to other programs. This year, the struggle reached new heights as OMB pressured EPA to change guidance in mid-year in the hope that the program could be ended. The public is disappointed in these political maneuvers. Water quality continues to degrade. The result is that States are not adopting their own programs and in fact are closing lake programs down. Florida is a good example (with hundreds of degraded lakes) that once had a strong program. With mixed signals from Congress and EPA, Florida ended its lakes program; Maine, Wisconsin, and Washington had to struggle to keep their programs. The desperately needed local/State/Federal partnership for restoring and protecting lakes is being lost and the public is not being served.

This year, the Administration has asked for no funding for the Clean Lakes Program. This is a tragedy! In the NALMS lake survey, the States reported a conservative immediate need of $150 million to address priority degraded lakes. The seriousness of the problem is recognized by the States but they clearly cannot handle it alone. They need substantial Federal guidance and financial incentives to develop their own programs. This situation is no different from the construction grants program and financing of municipal wastewater treatment. An adequately funded program is needed to bring the States up to speed in addressing such national pollution problems. Section 314 needs this level of funding if States are to develop restoration and protection programs for lakes.

EPA PROPOSES NO FUNDING FOR NONPOINT SOURCES CONTROL

Recent investigations have documented that nonpoint source pollution causes greater amounts of water quality damage in our Nation's waters than do point source discharges. The NALMS State Lake Survey found that nonpoint sources were the most significant cause of degraded water quality in lakes and reservoirs. EPA's Nonpoint Source Report to Congress indicated that lakes -- more so than other waterbodies -- were being degraded by nonpoint sources. Even the EPA-sponsored National Fisheries Survey found about 40 percent of the Nation's waters to be degraded by nonpoint sources while only 10 percent were degraded by point source discharges. EPA has recognized the problem, has indicated that it has sufficient authority in the Act to address nonpoint source pollution, and has prepared a National Nonpoint Source Policy for achieving abatement. Yet, the Administration has now proposed no funding for nonpoint source control and has zeroed out for 1986 the small EPA staff working on the issue.

This is not a responsible action. Congress is currently appropriating billions of dollars to treat point source pollution under the construction grants, NPDES, pretreatment, and section 106 programs while point source pollution is only a very small part of the entire water quality problem facing our Nation. A significant staff in terms of FTE in Washington and the regional offices is needed by EPA to implement the National nonpoint pollution control policy. Action is needed not only on the part of State agencies in developing nonpoint control programs but also on the part of Federal agencies whose programs cause nonpoint pollution. Much planning was done under section 208 of the Act and many States now know where these nonpoint problems are. A special appropriation under section 106 is needed to give States incentive to develop nonpoint control programs in priority watersheds experiencing impaired use from nonpoint pollution. EPA should target this funding to States that do not now have the needed capabilities to accomplish this work as an incentive to develop the programs, especially for lake watersheds.

CONGRESS IS NOT GETTING NEEDED INFORMATION

The Congress is not getting the information needed to make necessary decisions on appropriations concerning polluted lakes. Groups that traditionally represent States' views on pollution control emphasize continued funds for construction grants. Wildlife groups concentrate on estuaries and trout streams. Even EPA is not telling Congress how bad lake pollution is. In EPA's Water Quality Report to Congress, submitted in February 1984, there was not one section devoted to lake pollution control or restoration needs. EPA has greatly downplayed the magnitude of damage caused by nonpoint sources to lake quality. We have reviewed a draft of this year's 305(b) Water Quality Report to Congress, and while the lakes and reservoirs section has improved, it still seems to be understating the pollution problems facing lake resources and the restoration needs for achieving Clean Water Act goals. In fact, the report indicates that lakes are of good quality overall.

We are concerned about this information provided to Congress. It seems to be based on a small number of States and jurisdictions (30 out of 56) and only a portion of lakes and reservoirs were assessed. Some States only report on the few lakes they have sampled that year or have data on. For example, Minnesota has 3.4 million acres of lakes but only 17,000 acres have been assessed -- only .5 percent of Minnesota's lakes are included in the report. Others have high average cutoffs and do not report on smaller lakes (less than 200 acres) or only report on point source assessments related to lakes. It was clear from the EPA-funded STEP project that only a very small portion of lakes and reservoirs were adequately monitored to determine status and trends in quality and conditions related to eutrophication. This draft report does not even mention the section 314 Clean Lakes Program, but it provides highlighted "success stories" on 5 lakes where progress has been made. Unfortunately, each of these was a section 314 project, which provided the incentive for clean-up, yet no acknowledgement was made that section 314 was used in restoration.

We were so concerned about this situation that we asked several States what they thought of the report.

From Minnesota:

> After reviewing the 1984 U.S. Environmental Protection Agency (EPA) (Draft) 305(b) Report to Congress, I can state the report does not accurately depict the status of lake

water quality in the state of Minnesota. The fact that the report is being used to represent the water quality of the nation and support some generalizations about the condition of the nation's lakes is alarming.

The report overextends its applicability when it uses the information to support several broad generalizations as follows:

> ...the information presented does not support the statement 'the nation's lakes are of good overall quality.'"
>
> ...the report identifies information provided by 19 states on 3,755 lakes which suggests 36 percent of the lakes are eutrophic; 48 percent were classified mesotrophic; and 14 percent classified as oligotrophic. Information from such a limited number of lakes must be looked at cautiously.
>
> ...the report again uses a limited amount of data (nine states and 1,941,106 acres of lakes) to indicate that 'a high percentage of the nation's lake acres are of fishable and swimmable quality.'

From South Dakota:

> Concerning the "Lakes and Reservoirs" section of EPA's 1984 draft 305(b) Water Quality Report to Congress, it appears that EPA is using a limited amount of data to make generalized statements about the water quality of the Nation's lakes. Based on the information we have received, it is unclear whether South Dakota lakes are represented at all in this report.
>
> DWNR disputes the statement '...the nation's lakes are of good overall quality, and may, in fact, be of slightly better quality than our rivers and streams.' Lakes usually trap a large portion of sediment, nutrients, and other pollutants entering them whereas rivers and streams receive constant flushing.
>
> The following statement is erroneous, 'This table (Lake Acres Meeting the Fishable/Swimmable Goal of the Clean Water Act) indicates that a high percentage of the nation's lake acres are of fishable and swimmable quality.' This statement is based on 1,941,101 acres. The State of Minnesota alone has more unassessed acres than is reported assessed for the whole nation. Nothing more needs to be said about generalizing from such a small amount of data.

From New York:

> The present Administration at U.S. EPA has become quite optimistic in recent years, seeing the lake quality glass as half full as opposed to half empty. ...The U.S. EPA 305(b) draft report you sent me seems to address water quality issues of the 1960's and 1970's and not the 1980's. Significant numbers of lakes in New York have water quality problems which limit best usage, and we presently have the resources to solve only a small few of just the high priority problems.

Congress cannot make well-informed decisions on funding if it is not receiving complete information. NALMS is concerned about the status of lake and reservoir quality in our Nation and that general reports such as 305(b) do not even include the ASIWPCA STEP report data on trends in water quality the last decade -- with 1.7 million acres of lakes degrading in quality over that 10 year period. This is not progress. This is a set-back for the entire Nation. With the information that exists on billions of dollars of damage each year caused by nonpoint source pollution; with billions of Federal dollars being spent on treating point source problems; with point source pollution being only a small part of our Nation's water quality problems; and with the continued degradation of lakes, we recommend that EPA be directed to submit a separate report to Congress on status and trends in lake and reservoir quality. The report should include estimates of economic damage associated with the degraded lakes, nonpoint versus point source contributions of pollution, and an estimate of cost associated with restoring the degraded lakes. There is a great deal of information that is available, but it does not seem to be reaching Congress.

RESEARCH FUNDING -- LAKE RESTORATION MANUAL

EPA's Office of Research and Development has spent almost three million dollars on an evaluation of the effectiveness of lake quality improvement techniques. A guidance manual was to be developed based on this evaluation from funding appropriated under section 104(h) of the Clean Water Act. The project was never completed and consequently EPA's obligation to the Congress and the public has not been fulfilled.

We find this troublesome. Work on this manual was started some years ago, and was aborted at a time when there appeared to be some confusion in the agency. The States and general public are still seeking this delayed but important information guide. We thought the manual was back on track this last year but we now understand that EPA has dropped the project. We request that specific direction be provided in the Committee report for EPA to complete this much-needed lake restoration manual.

GROUND WATER POLLUTION DEGRADES LAKES

Ground water is not an isolated resource. It is in dynamic equilibrium with streams, rivers, and lakes. Polluted ground water can affect water quality in rivers and lakes. During FY 1985 Congress provided appropriations under section 106 for States to develop ground water protection strategies. While Statewide efforts are helpful, specific areawide protection programs are needed for specific aquifers or acres of States that are vulnerable to contaminations. NALMS supports appropriations under section 106 targeted to specific ground water recharge areas for implementing protection programs.

SUMMARY

Our Nation's lakes and reservoirs have suffered terribly from pollution, over 4,000 of them have been identified as having use impairments, and many more are now deteriorating. Over the last decade, the problem as identified by States has grown 10-fold and action on the part of Congress is urgently needed.

This tragedy can be traced to inadequate implementation of the Clean Water Act. EPA says that they have sufficient authority to resolve nonpoint pollution problems, yet they are not using the authority and their small nonpoint source staff is scheduled to be zeroed-out for 1986. There are mechanisms to deal with ground water protection in sections 102, 106, 208, 303, and 304 of the Clean Water Act, yet EPA does not use them. Section 314 can be used to restore and protect lakes and reservoirs, but EPA has not proposed funding. This lack of implementation of key sections of the Act is destroying the local/State/Federal partnerships established in the 1970's that was to address lake pollution problems, and EPA is now losing its credibility with the public.

Americans clearly want and deserve clean lakes and reservoirs for safe drinking water, recreation, industrial use, and aesthetic enjoyment. More than half our Nation's population lives within 5 miles of a publicly owned lake! This subcommittee can reverse the worsening trend in pollution of our Nation's lakes by targeting funds to keep programs and by providing specific instructions on use of the funding to EPA. NALMS asks this subcommittee to make a commitment for clean water by supporting our recommendations for funding these key programs and we appreciate the opportunity to testify before you.

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FEATURE

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Lakes are losing the battle in clean water programs

Alfred M. Duda, Robert J. Johnson

The quality of our nation's lakes and the valuable benefits they provide are in jeopardy. Despite a decade of progress in reducing pollutants in streams and rivers, lakes continue to accumulate pollutants that have gone unregulated, and fledgling programs in lake protection and restoration have been virtually eliminated. In a recent survey of lake quality problems conducted by the North American Lake Management Society, state water pollution control administrators responded that 4200 publicly owned lakes were suffering impaired use because of poor water quality and that nonpoint sources were significant contributors to the continued degradation of lakes. This estimate of degraded lakes represents a 10-fold increase in the number of problem lakes reported in a similar study conducted over a dozen years ago. These results demonstrate that nonpint source pollution and lake restoration/protection are national problems that the states are not able to address. While technology is now available to reduce pollution inputs and to restore lake quality, essentially irreversible damage continues to occur and billions of dollars in benefits for future generations are threatened.

More than 99% of U.S. citizens live within an hour's drive of a publicly owned lake; nearly one-third of them live 5 miles or less from a lake. This includes about 36 800 lakes and reservoirs greater than 40 ha in area. These lakes are essential not only for their ecological functions but also for water supply, flood control, recreation, and wastewater disposal—uses that provide many billions of dollars in benefits to the economy each year.

While streams and rivers can flush pollutants downstream and can respond quickly to reductions of waste discharges, lakes are ecologically fragile because they trap pollutants and accumulate them in the water column, bottom sediments, and aquatic life. Depending on their physical characteristics, different types of lakes and reservoirs have different sensitivities to pollution loading; because of their vulnerability, lakes need more attention than rivers and can assimilate less pollution without damage. Simply reducing pollutant loading is not adequate protection for many lakes; further treatment and restoration measures are needed. The longer pollution abatement is delayed, the more expensive restoration is likely to be and the greater is the risk or irreversible damage.

In this paper the nature and extent of lake pollution control adminstrators conducted during the summer of 1983. The states report that the nation is losing the battle to keep our lakes clean and that cooperative local, state, and federal efforts to restore good water quality to our tens of thousands of degraded lakes have almost ceased. Unregulated inputs of nonpoint source pollutants were identified as a major contributor to lake pollution, and the lack of necessary federal technical, institutional, and financial assistance was a major impediment to the restoration and protection of lake waters. The 1980s is a decade of challenge—to establish a national water quality management program to restore and protect our valuable lake resources.

Lakes are being forgotten

Our lakes are in trouble, as are their multibillion dollar benefits. This was the message in 1979 from the President's Council on Environmental Quality[1] and in 1980 from the U.S. Environmental Protection Agency (EPA).[2] The 1970s were a decade of progress in reducing point source discharges of conventional pollutants and dissolved oxygen improved in many rivers, but discharges of other pollutants such as nutrients, toxics, and long-term oxygen demanding materials continue to degrade lakes and reservoirs and nonpoint source pollutants continue to accumulate in them. Trends in water quality cannot be determined for most lakes because they are not a priority for state ambient monitoring activities. In fact, most of the state and the ambient U.S. Geological Survey national network monitoring stations are located in rivers and streams.

There has been little regular monitoring attention; furthermore little emphasis is being placed on cleaning up the accumulated pollutants still degrading lakes. A fledgling EPA program authorized under section 314 of the Clean Water Act, known as the Clean Lakes Program, developed regulations in 1980 for helping states to clean up their degraded lake resources while protecting the good quality lakes. Matching grants were issued to states to classify their lake resources and begin protecting and restoring them so the public could again enjoy them. Since 1980 the progam has been essentially disbanded by EPA and appropriations have dwindled to a trickle. State progams established to work cooperatively with the national program were left without support. Pollution problems plaguing lakes seem to have been forgotten. Even the 1982 National Water Quality Inventory submitted by EPA to Congress in early 1984 made only passing reference to pollution in lakes, although it acknowledged that excessive nutrient loading and nonpoint sources were degrading waters in most states.

State lake quality survey

The North American Lake Management Society (NALMS) is a national organization of citizens, scientists, lake associations, and water pollution control professionals who are concerned about poor quality water in U.S. lakes. The Society was formed to educate the public about lake ecosystems and to encourage protection, restoration, and proper management.

Because lake resources need national attention, the Society decided in 1983 to solicit information from the states about the extent and severity of lake quality problems and the institutional constraints they face in restoring and protecting lake quality. This information would provide a national assessment of lake pollution problems and restoration needs and would help Congress in reauthorizing the Clean Water Act.

In the summer of 1983 the Society mailed a questionnaire to the water pollution control administrator of each state. The form contained 37 questions covering such issues as the extent of lake use impairment, nonpoint source inputs, lake restoration needs, and institutional considerations. Of the 50 states, 38 completed their questionnaires. Of states with large populations, only Indiana, Ohio, and Texas did not return their questionnairs. States that did respond to the NALMS survey are shown in Figure 5. Of the responding states, 34 had received lake classification grants from EPA under section 314 of the Clean Water Act, and therefore had already answered some of the same quesions. But most states do not have the funds to monitor the quality of their lakes and reservoirs well enough to make comprehensive assessments—federal and state priorities are on stream and river quality assessment programs. The state survey provides a very conservative assessment of national lake quality problems. Actual lake impairment exceeds the state estimates considerably, perhaps by an order of magnitude. Results of the survey were summarized by Duda and Johnson[1] in a report available from the North American Lake Management Society.

Lake survey results

The extent of lake quality damage as reported by the states is staggering—almost 9 300 lakes had excessive levels of nutrients, about 12 000 lakes had noxious growths of weeds and algae, and more than 120 lakes were contaminated by toxic substances. Figure 1 presents the estimated numbers of lakes with excessive nutrient loading (as determined by the states) for 10 states scattered across the country. Massachusetts, Minnesota, New Jersey, South Dakota, and Wisconsin each identified more than 350 lakes that had excessive nutrient loadings. Eutrophication of lakes and impoundments is a widespread problem in need of effective solutions.

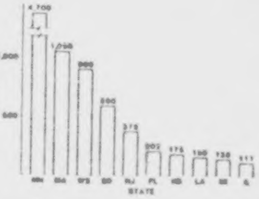

Figure 1—Number of lakes with excessive nutrient levels as reported by selected states.

Eighteen states identified 123 lakes (about 200 000 ha of water) contaminated by toxic chemicals. Florida, Minnesota, Mississippi, Tennessee, and Utah each reported at least nine contaminated lakes. Agricultural pesticides, heavy metals, and polychlorinated biphenyl (PCBs) were the primary contaminants.

The water pollution control administrators were asked to identify the number of lakes with impaired use caused by poor water quality and their total surface area. Of the 38 responding states, only 27 identified the number of lakes with impaired use and only 16 estimated the surface area affected. About 4200 lakes with impaired use from all pollution sources were identified by the states and an estimated 1.6 million ha of lake water were affeced. This is a very conservative estimate because so few state provided information and because the status of tens of thousands of other lakes that are not monitored regularly is not known.

Figure 2 illustrates the distribution of reported lake use impairment across the country. It shows how the total suface area of lakes with impaired use are distributed among each of the 10 EPA regions. Three of the regions (IV, V, and VII) accounted for more than 80% of the national total of surface area with impaired use. Among states reporting more than 50 000 ha of lakes with impaired use were Florida, Idaho, Illinois, Minnesota, Oklahoma, South Dakota, Tennessee, Utah, and Wisconsin. In the urban corridor from Virginia to New England, there were about 1600 lakes with impaired use. Because many of the lakes are small, the total surface area with impaired use was much less than in the Midwest or Southeast.

Other water quality problems plaguing lakes were also identified. Low dissolved oxygen conditions affecting about 10 000 lakes were reported by 17 states. Sediment loading was identified as a serious problem affecting nearly 5000 lakes in 22 states. About 1500 lakes were estimated to be contaminated with excessive levels of bacteria in 21 states.

Nonpoint source pollution

Lakes are especially sensitive to nonpoint source imputs of sediment, associated toxic pollutants, and nutrients because they trap pollutants. The states were asked whether nonpoint sources seriously affected water quality in lakes and impoundments. All but one of the 38 responding states said that nonpoint sources seriously affected lake quality. Only Georgia reported that nonpoint sources were not causing serious lake pollution problems.

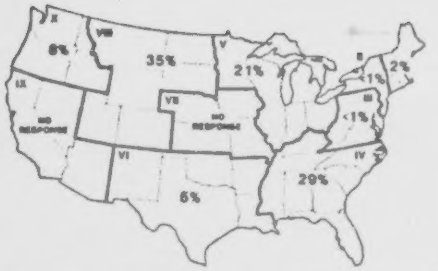

Figure 2—Distribution of total lake surface area with impaired use by EPA region.

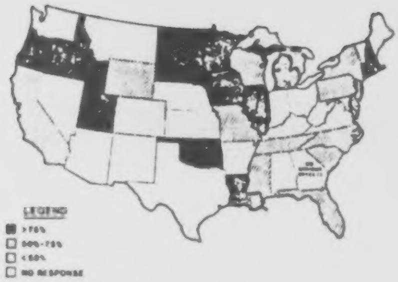

Figure 3—Proportion of lakes seriously affected by nonpoint sources of pollution as reported by the states.

When asked what proportion of lakes were seriously affected, the states responded as shown in Figure 3. More than two-thirds of the states reported that at least half of their lakes were being adversly affected, and 15 states indicated that more than 75% of their lakes were being hurt by nonpoint source inputs. With about 24 000 lakes and almost three million hectares of lake waters being located in just these 15 states, nonpoint source pollution of lakes clearly represents a significant national problem.

In all, more than three-fourths of all lakes in EPA regions II, V, VI VII, and X were reported to be seriously affected by nonpoint source pollution. When asked whether they had enough technical and financial resources from state and federal sources to solve these problems, 94% of responding states noted that they did not. Only Georgia and Missouri said they did not need additional state and federal help to solve their nonpoint source pollution problems.

Status of the EPA Clean Lakes Program

In 1980 EPA adopted regulations governing the section 314 Clean Lakes Program and established a strategy for restoring and protecting lakes. Because only a handful of states were in a position to address the needed clean-up, EPA's strategy was to help the states to develop their own legislative and regulatory authority within 5 years and assume complete responsibility for lake restoration and protection efforts. EPA indicated that it would continue to seek appropriations of between $15 and 30 million annually to assist the states in making this transition.

Unfortunately this process never got off the ground. In fiscal year 1984, as in the previous 3 years, EPA asked for no appropriations for lake restoration and protection. Congressman Roe and Stangeland and Senators Garn and D'Amato convinced Congress to add $5 million to EPA's 1984 budget for lake restoration. Meanwhile additional lakes have become degraded and funding needs for lake restoration have increased.

Water pollution control administrators were asked to list the number of lake restoration projects that the state expected to submit to EPA for funding consideration in fiscal year 1984. The responding states needed approximately $41 million to implement or complete about 70 lake restoration projects in fiscal year 1984. Similar funding needs were identified for fiscal years 1985 and 1986 and are much greater than the $5 million appropriated by Congress for 1984. Figure 4 presents the distribution of fiscal year 1984 section 314 funding needs by EPA region. While the funding needs seem to be evenly distributed across the country, a comparison of Figure 4 with Figure 2 shows that states in some regions have more aggressive lake restoration programs and greater known restoration needs. For example, states in the Northeast (EPA regions I, II, III) have been aggressive in cleaning up lakes and have disproportionately greater fiscal year 1984 needs than the extent of impaired use (Figure 2) would suggest. In contrast, some EPA regions (IV and VIII) with vast areas of lakes with impaired use have lagged in lake clean-up efforts. EPA regions IV and VIII have over 60% of the reported national lake use impairment, yet these states account for only 8% of the national funding requested for the fiscal year 1984 lake restoration program.

Most states seem genuinely concerned about the decline in quality of their lake resources. About 80% of responding states indicate that the level of citizen complaints about lake quality is medium to high. Many states include lake water quality as a priority issue in their section 305(b) reports to EPA, and most states have found the EPA section 314 program quite helpful in restoring lake quality. An overwhelming 95% of states responded that they would be willing to develop and operate such a program or that they would continue an existing lake restoration program. The states were asked about the likelihood of success in developing state programs, and their responses are presented in Figure 5. Almost 60% of responding states indicated that development of self-sufficient state programs had a good (medium to high) likelihood of success. The longer the develpoment of these state programs is delayed, the greater will be the number of lakes in need of restoration and the more expensive the clean-up will be.

Losing the battle

In 1971 EPA sponsored a survey of state water pollution control administrators to determine the extent of damage to U.S. lakes. Ketteel and Uttormark[4] summarized the results provided by the 40 responding states. There were 425 problem lakes identified; 227 had nuisance algal blooms, 179 had nuisance growths of aquatic plants, 43 had siltation problems, and seven were contaminated by toxic substances. The 1971 information contrasts greatly with the results of the 1983

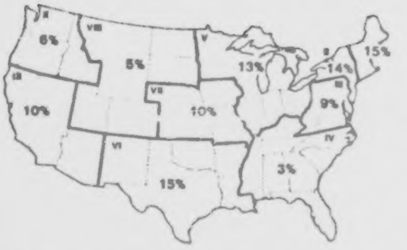

Figure 4—Distribution of Fiscal Year 1984 section 314 lake restoration funding needs by EPA region.

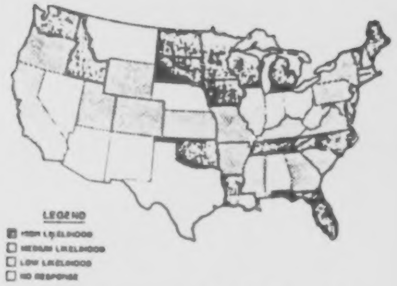

Figure 5—State responses to the likelihood that a state lake restoration program could be developed.

state lake survey, which found 4200 lakes with impaired use, 12 000 with noxious growths of weeds and algae, 5000 with siltation problems, and 123 with toxic substance contamination. While these two surveys cannot be strictly compared, it is alarming that 10 to 100 times more problem lakes of certain categories were reported in 1983 than in 1971. The U.S. is clearly losing the battle to restore and protect our valuable lake resources.

Of parteiular concern is the 15-fold increases in toxic substances contamination of lakes and the 10-fold increase in the number of problem lakes or those with impaired use that were reported by the states in the last decade. Table 1 presents a comparison of state responses to the 1971 and 1983 lake quality surveys for nine states in six EPA regions. An alarming increase in the number of problem lakes was reported in each of the states, many of which are known for their concern about lake quality. In just these nine states, the number of problem lakes increased 20-fold, from 156 in 1971 to 3329 in 1983, and the use of over 875 000 hectares of their lake waters is impaired. In Florida a four-fold increase in problem lakes occurred over the last decade, and the state has prepared a list of 50 top priority degraded lakes in need of restoration and protection and another priority 50 lakes in need of pollutant loading reductions to protect them.[8] Not only has the list of problem lakes in Florida grown from 49 to 202 during the last decade, but 30 of the degraded lakes identified in 1971 are still on the restoration priority list and 20 more have been added. It is clear that many lakes that were degraded in 1971 are still degraded and many more lakes have become degraded in the last decade. The nation is losing the battle!

Lake degradation takes many forms. Lake Apopka in Florida and Ocean Lake in Wyoming were national treasures in the 1950s. People were attracted to them from across the country for recreation, and their fisheries were nationally significant. In the last two decades massive nutrient loads from agricultural activities have created pea soup-like algal blooms in both lakes. the famed fisheries have collapsed under the eutrophic conditions, recreation is impaired, and tourism has been seriously affected. The price tag for restoring just Lake Apopka is $25 million.

A potentially more serious problem, accelerated eutrophication, faces Lake Okeechobee, the primary water supply for south Florida. Very high levels of nutrients from agricultural activities reach the lake and cause water quality problems.[6] Measures to reduce nutrient loading 30 to 40% are projected to cost more than $160 million, with $100 million of that to restore wetland areas of the channellized Kissimmee River so that nutrients may be absorbed.

Urban runoff continues to degrade water quality in the Occoquan Reservoir and has threatened its suitability as a water supply for northern Virginia.[7] Nolichucky Reservoir in Tennessee, Lake Charleston in Illinois, and Lake Boone in North Carloina are already lost because of sedimentation, as are the economic benefits they would have provided to future generations. Fishtrap Lake and Dewey Reservoir in Kentucky are rapidly filling with sediment[6] and the federal investment in building these flood control projects is in jeopardy.

South Dakota reports that most of their more than 700 lakes have problems with algae, nutrients, and sedimentation.[9] Many of the lakes look like pea soup and are plagued by fish kills because of excessive pollutant loadings from agriculture. In Illinois 137 lakes and reservoirs have moderate to severe loss of capacity because of accelerated sedimentation from cropland erosion; accompanying nutrients cause serious algal blooms.[10] In the Pacific Northwest the use of 45 lakes and reservoirs is significantly impaired, mostly because of nutrients and organic matter from agricultural runoff and irrigation return flows.[11]

In the Southeast EPA reports that 19 Mississippi Delta lakes suffer toxic contamination from agricultural pesticides and approximately three-fourths of all urban lakes monitored in the area had impaired use.[12] In southeastern Arkansas most of the lakes are not classified by the state for recreation because of agricultural pollution; the one lake that is so classified is threatened by poor water quality.[12] Animal waste entering Lake Tholocco in Alabama has produced excessive bacteria[13] which interefere with recreational use, and PCB discharges from an industry have contaminated Lake Hartwell in South Carolina.[13] Municipal and industrial wastewater discharges seriously degrade embayments of numerous lakes in North Carolina[14] and Kentucky;[8] and Parksville Lake, a Tennessee Valley Authority project in Tennessee, is virtually a biological desert because of industrial point and nonpoint source inputs of heavy metals.

Table 1—Comparison of lake quality problems reported by state agencies in 1971 and in 1983

State	1971 Survey[a] number of problem lakes	1983 Survey results: Number of lakes with impaired use	Extent of impaired use (ha.)	Number of lakes with excessive algae/weeds/nutrients	Number of lakes with toxics contamination
Arkansas	1	11	4595	11	3
Florida	49	202	292 520	150	10
Illinois	8	201	52 900	128	5
Massachusetts	23	1050	21 255	1050	?
Michigan	24	173	43 036	138	?
Oregon	3	15	32 591	50	3
South Dakota	10	350	184 206	590	?
Wisconsin	34	1300	202 429	5000	?
Utah	4	27	54 044	20	24
Total	156	3329	887 082	7145	45

[a] From the lake survey conducted for EPA by Ketelle and Uttormark.[4]

In the northern industrial states, particularly around the Great Lakes, complex pollution problems have resulted from decades of unregulated discharges. There are fish consumption advisories for each of the Great Lakes because of chemical contamination. Thirty-nine areas of concern, environmentally degraded with impaired use, have been identified by the Great Lakes Water Quality Board.[13] Numerous toxic chemicals have contaminated the bottom sediments and biota; these pollutants will continue causing degradation unless restoration measures are instituted. Combined sewer overflows also add pollutants which impair recreation, fisheries, and water supplies; accelerated eutrophication from point source discharges and agricultural nonpoint sources continues to impair use of nearshore waters. Just recently cancerous tumors have been found in fish surviving in contaminated areas of the Great Lakes basin and new concerns about public health in the region have surfaced.[14] These concerns also include the effects of eutrophication on public water supplies, as trihalomethane precursors are produced in eutrophic waters and water treatment costs may be increased greatly.[15]

It is clear that very complex pollution problems plague our lakes and that they must be solved before irreversible damage is done. These lakes are valuable not only for their ecological and recreational value and for industrial water supply but also for their contribution to the local economy. A case in point is Reelfoot Lake in a rural area of west Tennessee. With its state park and federal and state wildlife refuges, the lake is important to the local economy, bringing in over $10 million each year to the rural area.[16] Unfortunately, sedimentation has reduced the size of the lake about 75% to 5200 hectares, and if cropland erosion in its agricultural watershed is not reduced, the lake will soon become marshland. Reelfoot Lake provides an essential habitat for hundreds of bald eagles and osprey, both endangered species, but according to the state regulatory agency an accumulation of pesticides in the lake threatens them.[17] The lake ecosystem is on the decline. The heron, egret, and eagle populations are decreasing; rough fish dominate because of poor water quality, and nuisance plants are proliferating. Although some may not regret the deterioration of this one lake, the ecological and recreational values it represents are essential to the economic base of the area. Expenditures on the order of tens of millions of dollars might be needed to restore good quality water to the lake and its tributaries.

Lakes can be restored and protected

Reductions in point source discharges during the last decade have improved dissolved oxygen in lakes and have reduced bacterial contamination. Lake Erie is a good example—beaches have been reopened and some fish have returned. However accelerated eutrophication and toxic chemical contamination must still be fought.

Some lakes can recover on their own when pollutant loading is reduced and others need restoration measures to fight the accumulation of in-place pollutants that can continue to cause degradation. At Haley Pond in Maine, recovery from devastating algal blooms and fish kills was rapid once advanced wastewater treatment was installed because of the lake's short retention time and short history of overenrichment.[18] The story was different at Shagawa Lake in Minnesota, where tertiary treatment of municipal wastewater achieved an 80% reduction in external phosphorous loadings to the lake.[19] However, so much phosphorous had accumulated in the lake that complete recovery was prevented by internal recycling and long-term damage has probably occurred.

Once point source and nonpoint source loadings of pollutants are reduced to desired levels, proven lake restoration measures such as dilution/flushing, pollutant inactivation, weed harvesting, sediment removal, biomanipulation, lake level controls, or sediment covers may be needed to reduce in-place pollutants. In a 1981 report to Congress EPA assembled a state-of-the-art summary of techniques that can be used to restore and protect lakes.[20] Mirror and Shadow lakes in Wisconsin had received pollutants in urban runoff for decades that caused eutropic conditions and low dissolved oxygen. After nonpoint source loadings were reduced and aluminum sulfate was applied for nutrient inactivation, phosphorus was reduced about 60% in both lakes and nuisance algal blooms were eliminated.[21] At Lake Temescal in Oakland, California, loadings of bacteria, sediment, and nutrients that were impairing use of the lake were reduced by controlling nonpoint sources so that the lake can be used for recreation.[22] Other success stories at Medical Lake in Washington, Twin Lakes and Dollar Lake in Ohio, and Annabessacock Lake in Maine have been summarized by Cooke.[23]

In 1980 EPA surveyed the costs and benefits associated with 23 lake restoration projects being conducted under the Clean Lakes Program.[24] The analysis showed that many millions of dollars of public benefits can be restored when lake clean-up takes place. The results indicate that benefits exceed the federal share of the cost of the lake restoration projects by an 8-to-1 margin. Benefits accrued to recreation, flood control, economic development, fisheries, property values, public health and water supply; for some lakes, discounted benefits for a 10-year period ranged up to $47 million. Lakes can be restored and protected. The Clean Water Act provides the mandate and the tools to get the job done.

A decade of challenge

The 1970s have generally been perceived as a decade of progress in water quality improvement. While localized improvements have certainly occurred, information from the U.S. Geological Survey national monitoring network shows very little improvement in river water quality nationwide over the last decade. In its 1983 National Water Summary[18] the Survey found, for example, that organic carbon (an indicator of oxygen demand) has decreased in only 5% of 300 stations nationwide, while 95% have had no change or increasing concentrations. Decreasing trends in turbidity, phosphorus, and fecal coliform bacteria occurred at only 7, 10, and 12% respectively, of river monitoring stations while the rest experienced either no change or increasing pollutant levels. The combination of this disturbing condition in our rivers, declining water quality in many estuaries, and the continued degradation of lakes, presents a formidable challenge for water quality managers.

The 1980s are a decade of challenge for meeting water quality goals in all waters, and the challenge is particularly critical for lake resources. The results of the 1983 State Lake Survey clearly shows the magnitude of lake pollution. With tens of thousands of lakes seriously affected by pollutants, with many thousands degraded to the point that their use is impaired, and with potential billions of dollars in economic benefits for future generations in jeopardy, citizens should be extremely concerned that we are losing the battle to restore and protect lake resources.

The states recognize that their lakes are in jeopardy, but they cannot handle the problems alone. The states are very willing to work with EPA to develop needed programs if the federal government will contribute guidance and financial assistance. Nonpoint source pollution, particularly from agricultural and urban sources, is the most significant challenge to lake quality. The damage being caused by nonpoint sources across the country, is staggering; effective legislation and regulatory programs are desperately needed. States must also adopt quantitative and enforceable water quality standards to protect different types of lakes and reservoirs. Because such standards have been adopted for rivers but not for lakes, lakes are just not getting the attention they require if they are to be of use to future generations.

Additional attention to point source discharges is also warranted. Discharges of toxic substances, nutrients, and long-term oxygen demanding materials continue to degrade lake quality. Water pollution control professionals must realize that additional treatment requirements may be necessary to protect many lakes and reservoirs. Once pollutant loading to lakes is reduced to acceptable levels, restoration measures may be needed to treat in-place pollutants. Full support for the EPA section 314 Clean Lakes Program and delegation of this responsibility to states are key items in meeting the challenges of the 1980s. Some lakes have been irretrievably damaged, and in others the damage is too expensive to correct. Public pressure and concern for clean water has not waned. The fate of our lake resources in this country and the billions of dollars of benefits they provide are in the hands of water quality management professionals. The challenge must be met.

Acknowledgments

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Senator STENNIS. All right, sir, we thank you for your testimony. We are glad you could come. We appreciate your interest in the subject matter. You didn't have anyone with you here?

Mr. FUNK. No, I felt quite comfortable, however. I am a transplant from the State of Utah. I was glad to see these gentlemen talking about 12 inches of rainfall. I am out in the State of Washington with 80 to 100 inches.

Senator STENNIS. Well, good luck to you. We are glad you came our way.

Mr. FUNK. Thank you.

Senator STENNIS. Excuse me, just a minute here.

CLEAN LAKES AUTHORIZATION AUTHORITY

Mr. Funk, I have a question here. A matter of some concern to this subcommittee and especially over in the House, has been that the Clean Lakes authorization authority has expired.

Now, what prospects do you see for the reauthorization of this program?

Mr. FUNK. Well, at least in our communications we have seen from most States, there is a great deal of interest in reauthorizing it. It is a popular program. The return on money spent for lake restoration is around 8 to 1.

Our real thrust here is trying to provide some kind of framework for States that perhaps are not as well equipped as my own State to start their own programs. That is our main trust.

In my State, Washington provides about $39 million to referendums for this type of work. That is considerably more than this organization is asking, nationally.

But we recognize other States need to take steps to reverse the deterioration that I mentioned in my testimony.

Senator STENNIS. Yes.

Mr. FUNK. If it is not reauthorized, we would like to see continued—if it could be possible, to continue the appropriation at the $5 million level that we have had in the past.

This provides some kind of a framework for EPA and the Federal Government or States to continue some kind of essential program.

Senator STENNIS. Well, I think your opinion is worth something and I am glad to have it recorded here. All right.

Is Mr. Walker here in the house, Mr. Kenneth Walker?

All right. Well, thank you again, Mr. Funk.

Mr. FUNK. Thank you.

STATEMENT OF KENNETH WALKER, WATER AND WASTEWATER EQUIPMENT MANUFACTURERS ASSOCIATION, INC.

Senator STENNIS. All right. We are glad to have you here. You proceed in your own way. I am sorry that we have to ask you to obey those limitations on time.

Mr. WALKER. Thank you, Mr. Chairman. I am Kenneth Walker of Environmental Elements Corp. I am a member of the Water and Waste Water Equipment Manufacturer's Association.

I am pleased to be here today to present WWEMA's views on the 1986 appropriation for the Environmental Protection Agency's Office of Water.

WWEMA is an association of over 120 major corporations that develop and manufacture technology and supply equipment, materials, and services to the potable water and sewage treatment industries.

The equipment and systems that we provide account for approximately 20 percent of the total dollar expenditures under the Clean Water Act Municipal Construction Grants Program. An equal amount is provided to industrial dischargers. We also provide a substantial amount of equipment to purveyors of potable water.

Considering the Construction Grants Program, the administration, operating under tight fiscal constraints, is seeking only $2.4 billion for construction grants in 1986. It is proposing to phase the program out completely by 1991. Grants would be limited to projects currently under construction.

The results of a recent WWEMA survey of State administrators show 32 of 44 States responding, unable to achieve the 1988 compliance deadline because of lack of financial capability.

Respondants also cited the inability of local governments to provide their share of the project cost and the lack of alternative feasible funding methods as major problems.

Recognizing the dual difficulties of complying with Federal laws without Federal assistance, continuing Federal grants at a time of Federal budget cuts, WWEMA proposes replacing the current Construction Grants Program with a Loan Guarantee Program over a 5-year period.

A short transition time serves two purposes: It provides continued funding stability to support controls in the July 1, 1988, compliance deadline and national municipal policy; and it encourages States and municipalities to develop their own financing mechanism for sewage treatment in an orderly fashion.

We cannot stress strongly enough the need to remove the Federal Government from the sewage treatment facility and construction business in the near future with a phase-in of a State-administered Loan Guarantee Program.

The concept behind phasing out the Grants Program and substituting a Loan Guarantee Program is to encourage municipalities to obtain low-interest financing through the bond market and private institutions.

This will remove local jurisdictions dependancy on grants and maintain the revenue flow into the program.

The loan guarantees will provide for maximum leveraging of financial resources to construct far more wastewater treatment facilities than is possible under a direct grant program.

WWEMA proposes increasing the $2.4 billion annual authorization to $5 billion in 1986 to provide assistance and incentives to communities to meet the deadline of 1988.

To achieve a self-supporting loan guarantee program by 1990, approximately $1 billion of the $5 billion annual appropriation would be dedicated to loan guarantees in States with a program framework in place.

The grants portion would continue to decrease by $1 billion each year. The loan funding would increase by the same amount in 1990.

The following year the Construction Grants Program would be ended and the State run Construction Loan Guarantee Program would be fully funded in all 50 States.

Thus, under the WWEMA proposal, Federal funding, as well as Federal participation in sewage treatment would cease in 1990.

Private sector involvement is equally important. With budgetary constraints facing all levels of government, pollution control efforts must compete with expenditures of a myriad of other Government-supplied services, including police and fire protection, education, defense, highways, and social services.

The private sector should be encouraged to fill the gap left by too little money and too many Government responsibilities.

WWEMA urges that tax incentives such as accelerated depreciation and investment tax credits be maintained to enhance private financing of wastewater facilities.

Finally, despite the wide interest in privatization, developing a practical model of private involvement in construction and management of wastewater facilities will take a number of years.

Until that time, the bond market will continue to be the primary source of funds to replace the decreasing Federal involvement in wastewater treatment.

Industrial development bonds provide the most important source of capital for private industry interested in building wastewater treatment facilities. Restrictions on IDB's for sewage treatment should be removed.

Regarding drinking water, WWEMA is pleased that the Administration has not proposed large cuts in this vital area.

However, we urge the subcommittee and the Administration to give due weight to the need for increased research into the health effects of drinking water contaminants and methods of removing contaminants sufficiently to protect human health and welfare.

Congress is considering increasing the speed with which EPA must set standards for contaminants in drinking water as well as a number of contaminants for which standards must be set.

Without adequate research, the agency will be sorely tried in meeting this new mandate. Funding for research into the effects of drinking water contaminants on the public and the prevention of the spread of contaminants is essential.

A congressional proposal for more standards and increased monitoring will not be accomplished without increased cost to the utilities that must complement these requirements.

The funds to support production of potable drinking water and across-the-board monitoring of unregulated and regulated contaminants must come, not from Federal outlays, but from the public that will be protected, that there will be no Federal support for compliance with the requirements of the Safe Drinking Water Act must be made clear at the outset.

Financing the necessary contaminant removal process as well as other aspects of producing potable water is the responsibility of the water utilities supported by appropriate State and local agencies.

WWEMA urges you to clearly state that it is the responsibility of the appropriate water agency to finance production of safe, clean drinking water.

WWEMA believes that with Congress, EPA, the industry, and public interest organizations working together, we'll be able to satisfy the future needs of the Nation while continually improving water quality available at a price that is consistent with the benefits.

Thank you for your attention to our comments and suggestions. I would be pleased to answer any questions you may have.

Senator STENNIS. Well, we want to first thank you for your interest in the subject matter, for your attention here, coming before the subcommittee and for observations and suggestions that you have made.

Let me make an observation or a question here. You propose, now, "That current tax incentives be maintained to enhance private financing of wastewater facilities."

What examples do you have of significant privately funded phases?

Mr. WALKER. One example that comes to mind is the wastewater treatment facilities in the city of Chandler, Ariz., which is being developed by the Parsons Corp., as a private entity.

They will own, operate that wastewater treatment facility under a service contract to a local municipality. The funding for that comes from industrial development bonds and that organization, the private organization, will have responsibility for building the plant which is under construction now and for operating it over that period.

Senator STENNIS. All right. Well, you can add any observation you want. You have got 5 days or something like that.

Mr. WALKER. Yes.

Senator STENNIS. Any observation or point that you might think of, you have 5 days additional——

Mr. WALKER. Thank you.

Senator STENNIS [continuing]. To write it out in proper form and send it to the subcommittee. It will appear in the record.

Mr. WALKER. One other comment.

Senator STENNIS. All right, sir.

PRIVATIZATION

Mr. WALKER. One other comment regarding the privatization: That is the advantage that has been observed at Chandler and other projects, is that without the limitations of the EPA construction grant, the process of construction has proceeded much faster than it otherwise would have done, and also much more efficiently and it has occurred in the past where construction grants were being utilized.

So we see this as a very strong advantage for privatization and one that ultimately benefits the consumer.

Senator STENNIS. All right. Well, we thank you very much, again, for your cooperation and for your interest.

Mr. WALKER. Thank you, Senator.

Senator STENNIS. Thank you very much.

[The statement follows:]

STATEMENT OF KENNETH WALKER, ENVIRONMENTAL ELEMENTS CORP., ON BEHALF OF THE WATER AND WASTEWATER EQUIPMENT MANUFACTURERS ASSOCIATION

Mr. Chairman and members of the Subcommittee, I am Kenneth Walker of Environmental Elements Corp. and a member of the Water and Wastewater Equipment Manufacturers Association (WWEMA). I am pleased to be here today to present WWEMA's views on the 1986 appropriations for the Environmental Protection Agency's Office of Water.

WWEMA is an association of over 120 major corporations taht develop and manufacture technology and supply equipment, materials and services to the potable water and sewage treatment industries. The equipment and systems we provide account for approximately 20 percent of the total dollar expenditures under the Clean Water Act municipal construction grants program; an equal amount is provided to industrial dischargers. We also provide a substantial amount of equipment to utilities.

CONSTRUCTION GRANTS

The 1984 EPA Needs Survey predicts total needs through year 2000 of $108.9 billion. The cost of sewage treatment facilities for the current population is $40.6 billion according to the 1984 Needs Survey. This includes the bare minimum in treatment facilities (primary, secondary and advanced treatment, corrections for infiltration/inflow problems and new interceptor sewers). When costs for eligible treatment facilities are extrapolated to the year 2000, $53.1 billion is needed; but this sum does not include reserve capacity beyond October 1, 1990.

EPA estimates that the total funding needed through the year 2000, considering the increase in population, will be $101.7 billion, plus an additional $7.2 billion for reserve capacity beyond October 1, 1990.

The Administration, operating under tight fiscal constraints, is seeking only $2.4 billion for construction grants in 1986 and is proposing to phase the program out completely by 1991; grants would be limited to projects currently under construction. The Senate Budget Committee, after weeks of discussion on the 1986 budget, froze the sewage treatment grant authorization at $2.4 billion. Neither the Administration proposal nor the Budget Committee's response will provide sufficient funds for sewage treatment in 1986 and beyond.

Even a cursory review of the change in sewage treatment efforts over the life of the construction grants program shows the benefits of the program. Federal funding is important -- essential in fact -- if municipalities are to comply with the Clean Water Act requirements for fishable--swimmable waters and zero discharge of pollutants. Federal dollars are also necessary to assist these same local governments to meet the July 1, 1988 full compliance deadline set by the Act and reiterated by EPA in its National Municipal Policy.

Studies of funding needs all point to the same result -- without continued federal participation, sewage treatment efforts will wind down, if not come to a full halt. The results of a recent WWEMA survey showed 32 of 44 states responding unable to achieve the 1988 compliance deadline because of a lack of financial capability. The state water pollution control administrators surveyed by WWEMA also cited the inability of local governments to provide their share of the project cost and the lack of feasible alternative funding mechanisms as major problems.

The federal government cannot support the construction grants program at a level adequate to meet the $108.9 billion EPA estimates will be needed by the year 2000, especially in light of the increasing federal deficit. Yet, without some federal support, municipalities will be unable to achieve the July 1, 1988 Clean Water Act deadline. This results in a catch-22 situation in which federal deadlines must be met but there is exists little federal funding to meet those deadlines.

EPA established an internal Task Force on the Future Federal Role in Municipal Wastewater Treatment to answer the question of "What is the best way to deliver limited federal funds in the coming years to complete facilities, protect water quality and provide incentives to states and localities to become self-sufficient?"

The Task Force concluded that funding sources other than local governments are necessary to ensure continued efforts to meet sewage treatment needs. However, it did not propose an open-ended continuation of the grants program. Rather, the Task Force felt a gradual transition from federal to state responsibility for sewage treatment was needed, with stable federal funding while federal participation continues.

The Task Force also concluded that retaining federal grants and continuing the program in its present form would targete funding to nationally designated needs. On the negative side, the Task Force recognized that continuing a federal grants program would continue federal involvement in sewage treatment construction. The Task Force recommended continuing federal grants while developing other options for funding, particularly funding options that would make states and municipalities self-sufficient in the sewage treatment area.

The second option favored by the Task Force is capitalization grants for state revolving loan funds. The state loan fund would provide states, and municipalities, with a long-term source of highly leveraged funds, ensuring continued availability of funding for sewage treatment plant construction. States would receive federal seed grants to capitalize state revolving funds which would provide low or no interest loans to cities for wastewater treatment. As loans are repaid, funds would become available for loans to other local governments for additional wastewater treatment facilities.

In proposing a transition from federal grants to state revolving loan funds, the Task Force stressed the importance of considering future, as well as current, needs in developing any program. A halt in growth cannot be mandated and must be addressed in advance. Also important in any federal or state program is compliance with the 1988 deadline; the Task Force emphasized that the deadline should not be extended beyond 1988.

Recognizing the dual difficulties of complying with federal laws without federal assistance and continuing federal grants in a time of budget cuts, WWEMA proposes replacing the current construction grants program with a loan guarantee program over a five-year period. The short transition time serves two purposes: it provides continued funding stability to support the goals (and the July 1, 1988 compliance deadline) of the National Municipal Policy and it encourages states and municipalities to develop their own financing mechanism for sewage treatment in an orderly fashion. We cannot stress strongly enough the need to remove the federal government from the sewage treatment facility construction business in the near future, with a phase in of a state-administered loan guarantee program.

WWEMA believes the logical time to begin the transition from federal grants to self-supporting loan guarantees is now, when the construction grants program is undergoing reauthorization and amendment. Under WWEMA's proposal, the grants portion of the dual program would be phased out by 1990, when the loan portion would be fully implemented. The transition should be complete by 1990, the last year in which there will be federal funding.

The concept behind phasing out the grants program and instituting a loan guarantee program is to encourage municipalities to obtain low interest financing through the bond market and private institutions. This will remove local jurisdictions' dependency on grants and maintain the revenue flow into the program. Loan guarantees will provide for maximum leveraging of financial resources to construct far more wastewater treatment facilities than possible under a direct grant program.

WWEMA proposes increasing the $2.4 billion annual authorization to $5 billion in 1986 to provide both assistance and incentives to communities to meet the deadline. To achieve a self-supporting loan guarantee program by 1990, $1 billion of the $5 billion annual appropriation would be dedicated to loan guarantee programs in states with a program framework in place. The grants portion would continue to decrease by $1 billion each year, and the loan funding to increase by the same amount, through 1990. The following year, the construction grants program would be ended and the state-run construction loan-guarantee program would be fully funded in all 50 states. Thus, under the WWEMA proposal, federal funding for, as well as federal participation in, sewage treatment would cease in 1990.

Private sector involvement is equally important. With the budgetary constraints facing all levels of government, pollution control efforts must compete with expenditures for myriad other government-supplied services including police and fire protection, education, defense, highways and social services. The private sector should be encouraged to fill the gap left by too little money for too many government responsibilities. WWEMA urges that tax incentives such as accelerated depreciation and investment tax credits be maintained to enhance private financing of wastewater facilities.

Finally, despite the wide interest in privatization, developing a practical model for private involvement in construction and management of wastewater facilities will take a number of years. Until that time, the bond market will continue to be the primary source of funds to replace the decreasing federal involvement in wastewater treatment.

Industrial development bonds provide one source of capital for private industry interested in building wastewater treatment facilities; restrictions on IDBs for sewage treatment should be removed.

DRINKING WATER

WWEMA is pleased that the Administration has not proposed large cuts in this vital area. However, we urge the Subcommittee, and the Administration, to give due weight to the need for increased research into the health effects of drinking water contaminants and methods of removing contaminants to sufficiently protect human health and welfare.

Congress is considering increasing the speed with which EPA must set standards for contaminants in drinking water as well as the number of contaminants for which standards must be set. Without adequate research, the Agency will be sorely tried in meeting this new mandate. Funding for research into the effects of drinking water contaminants on the public and on prevention of the spread of contamination is essential.

The congressional proposals for more standards and increased monitoring will not be accomplished without increased costs to the utilities that must implement these requirements. The funds to support production of potable drinking water and across-the-board monitoring for unregulated (and regulated) contaminants must come not from federal outlays but from the public that will be protected. That there will be no federal support for compliance with requirements of the Safe Drinking Water Act must be made clear at the outset.

Financing the necessary contaminant removal processes as well as other aspects of producing potable water is the responsibility of the water utilities, supported by the appropriate state and local agencies. Water rates should be sufficient to cover existing costs as well as provide additional revenues for new federal programs. Adequate water rates would achieve both objectives while allowing the utility to equitably allocate costs of water treatment among consumers. Such action is nothing more or less than good management practice, implemented by any successful business.

WWEMA urges you to clearly state that **it is the responsibility of the appropriate water agency to finance production of safe, clean drinking water.** The local drinking water utility must take whatever actions are needed to produce high quality potable water, including increasing water rates to a level that will provide the necessary funds to implement the requirements of the existing SDWA as well as proposed revisions to the Act.

WWEMA believes that with Congress, EPA, the industry and public interest organizations working together, we will be able to satisfy the future needs of the nation, with continually improving water quality available at a price that is consistent with the benefits. Thank you for your attention to our comments and suggestions. I would be pleased to answer any questions you might have.

SUBCOMMITTEE RECESS

Do we have additional persons here now who wish to testify? All right, we will suspend here for a minute to check on the situation.

[A brief recess was taken.]

Senator STENNIS. Gentlemen, it has already been announced that Senator Garn has illness in his family. He cannot be here this morning. He is chairman of this subcommittee. He sends his great regret.

We have been proceeding here with certain witnesses and, due to votes coming up on the floor, which we expect around 11, we have had to limit the time allotted to the witnesses.

STATEMENT OF RUSSEL DONAHUE, PROGRAM MANAGER, RURAL WATER ASSOCIATION

ACCOMPANIED BY BRIAN BURNS, VERMONT

PREPARED STATEMENT

Senator STENNIS. But, now, one of you gentlemen are ready to testify for the National Rural Water Association?

Mr. DONAHUE. Yes, sir.

Senator STENNIS. All right, state your name for the record, please.

Mr. DONAHUE. My name is Russ Donahue. I am the program manager of the Rural Water Association of Utah.

Senator STENNIS. All right. Do you have a prepared statement?

Mr. DONAHUE. Yes, sir, I have submitted it to the committee, the written portion of it.

Senator STENNIS. All right.

Mr. DONAHUE. With your permission, I will refer to that but I won't read it in its entirety.

Senator STENNIS. Yes. All right, without objection, you may insert it in the record now, the statement to which you refer and in addition thereto, you can make such comments as you see fit. We are glad to have you here. You may proceed.

[The statement follows:]

STATEMENT OF DAVE BRETZKE, MEMBER, BOARD OF DIRECTORS, NATIONAL RURAL WATER ASSOCIATION

Mr. Chairman, my name is Dave Bretzke and I am the President of the Rural Water Association of Utah and a member of the National Rural Water Association Board of Directors for the last six years. I am here on behalf of the NRWA to thank you and this Committee for the support you have given this program in the past and to request your continued support for the program in the Environmental Protection Agency FY 1986 Budget.

The NRWA training and technical assistance program operates in thirty-three states and is directed in each state by a state rural water association whose membership is made up of the small water systems within that state. These are the rural water folks who have the responsibility for the operation of rural water in each state and they are committed to the continuous protection and improvement of rural water systems within their local communities.

This is a very special program. It provides a unique approach for meeting the Congressional mandate given the Environmental Protection Agency through the Safe Drinking Water Act (SDWA). In that Act the Congress determined that Federal action should be taken to protect the nation's drinking water supplies. It was an environmental area that had been the historical responsibility of the state and local governments. As in a number of other environmental areas the Federal government stepped in because the problem could no longer be solved only at the local level.

As EPA discovered, the protection of drinking water required different approaches than the protection from sewage and solid waste. One of the major differences was that there were many more drinking water systems than sewage treatment plants in this country. Another was that failure to protect drinking water immediately affects the health of the family or community using the water supply. This meant that there was a need for timely on-site assistance as well as long-term solutions.

The state governments were offered "primacy" to enlist their active participation in enforcing the Safe Drinking Water Act. However, after the initial effort to test and monitor the major water supplies in each state, it became clear that rural water systems provided a special geographic problem. While 80% of the people were served by the large community water systems, the most serious drinking water problems were occurring in those 80% of the systems which serve only 20% of the people -- the rural people. As EPA and the states began to contact these small systems to enforce the testing and water quality provisions of the Safe Drinking Water Act they found many systems with part-time operators, uninformed Boards of Directors, cash flow that allowed for minimal or no maintenance and, in general, a very defensive attitude toward EPA's intrusion into their business. In many states the Safe Drinking Water Act and the small rural water systems were headed toward a confrontation that nobody would win.

It is within this atmosphere that the NRWA rural water training and technical assistance program was created and has grown. The overriding thesis of the program is that the best way to improve the quality of the drinking water in rural areas is to improve the quality of water supply, the quality of water system operation, maintenance and management and to encourage a strong local commitment to charge the water rates needed to pay for a good quality water system. The objective of the NRWA program in each state has been to assist and guide local water system personnel and Boards of Directors to commit to a method of operation that will allow their systems to meet all the requirements of the Safe Drinking Water Act as well as prepare for having a strong and healthy rural water supply in the future. The way Tennessee and the other NRWA states have approached this objective is to have rural folks help rural systems to solve their own rural water system problems.

It is the manner in which this has been carried out that has made the program successful. The traditional approach for solving environmental problems has been to utilize the Federal-state-local staffs to set rules and enforce them. However, in the rural water business the final person in the chain -- the local staff -- may be only a part-time employee and, more than likely, is not experienced enough to adequately implement the rules. The NRWA program helps that local official or staff be able to respond and to respond with enthusiasm and commitment to the Safe Drinking Water Act requirements. In other words, our program encourages the cooperation necessary to bring small water systems water quality up to standards rather than resort to confrontation. It reduces the emphasis on Federal and state bureaucracies and relies on the routine daily work of small systems, part-time operators and Boards of Directors to improve the quality of their own local water systems. EPA is achieving its objectives of safe drinking water with the full support and active participation of the rural folks themselves.

One additional asset comes from the program. In-the-field contact with small systems actually reduces the demand for Federal assistance for FmHA water system grants and loans. When a system reduces water loss it increases its capacity at no cost, a well managed system builds up a reserve account and pays for improvements to meet the SDWA requirements from its own account and, most importantly, well informed systems through their state associations have caused state legislatures to create new bonding programs for small systems which has shifted a growing amount of financial assistance away from the Federal government to state and local programs. This is a unique EPA experience as opposed to the major grant efforts required for urban sewage treatment and elimination of toxic wastes. We believe that our approach for reaching rural systems and encouraging them to help themselves has saved the Federal government tens of millions of dollars a year.

The operation of the program is simple and straight-forward. The Program Manager in each state spends at least ten days a month in the field visiting rural water systems in response to requests for help from the water systems, from state agencies or the State Farmers Home Administration Office. In some cases the Program Manager simply drops by to visit. In system after system the problems of poor water samples, extensive water loss through leaks, nonworking chlorinators, stuck water tower altitude valves, malfunctioning meters and ineffective management practices are discussed and solutions found. Program Managers and other state association members make these visits with the objective of increasing the capabilities of each small system to improve its operation and to allow it to stand on its own financial and management capabilities.

To back up this in-the-field technical assistance, at least twelve rural water training workshops are held each year in each state. These workshops are held in small towns throughout the state and include instructors from the State Health Department, the Farmers Home Administration and, sometimes, the Regional EPA office. Participants are mostly small system operators, many part-time, as well as some water system board members and bookkeepers. It is at these sessions that a majority of the attendees receive their only information about the SDWA and the only advice on how to improve the operation of their water systems.

It is the person-to-person contact on a broad grassroots level that is the most important. For example, in the eleven months from April 1, 1984 through February 29, 1985, state associations conducted 354 workshops and provided training for 11,526 rural water operators representing 5,065 systems. With the constant turnover of small system operators the majority of these persons have never attended water-system training sessions. A total of 8,306 on-site technical assistance visits, including 2,380 for compliance with the Safe Drinking Water Act, were also carried out and were normally the only hands-on assistance provided to these systems to help them meet the requirements of the Safe Drinking Water Act. The workshops were critical in preventing numerous systems from falling under non-compliance with the Safe Drinking Water Act. (Attached are state-by-state breakouts of the workshops and technical assistance visits over the past eleven months.)

While a number of state rural water associations have expanded their programs through state funding and increased contributions from the small systems, the program requires continued EPA financial assistance to be effective throughout the country. Over the past six years the local systems and state associations have increased their own expenditures for the program significantly. Last year the Congress provided a small increase for the state programs and we are requesting a similar increase this year. Our request last year was to cover an additional ten thousand dollars a state and we received one half of it. In addition, we requested funding to expand the program into five new states. We are able to expand to only one. This year we are requesting your assistance to restore the program in the EPA budget with an increase to $2.5 million. This would allow the states to increase to $59,000 per state and for us to continue to fund West Virginia and add four additional states.

Thank you for your help and consideration in the past, and we appreciate your confidence in our unique approach for improving the quality of drinking water in the rural areas of this nation.

Eleven Month Period from
April, 1984 through
FEBRUARY 1985

	WORKSHOPS	YEARLY		
	NUMBER CONDUCTED	NUMBER ATTENDING	NUMBER SYSTEMS	POPULATION SERVED
Alabama	12	813	273	1059231
Arkansas	12	530	281	514141
Colorado	10	216	97	421635
Florida	10	271	176	455832
Georgia	12	623	211	3414262
Illinois	8	208	89	147075
Indiana	9	273	69	187666
Iowa	10	493	202	756879
Kansas	10	568	251	675393
Kentucky	9	417	128	679272
Louisiana	11	422	294	892854
Maine	10	331	132	436913
Minnesota	12	430	200	258544
Mississippi	10	266	107	284641
Missouri	11	223	88	325656
Montana	12	281	147	340190
Nebraska	13	415	231	554162
New Mexico	10	278	122	716875
New York	12	612	312	379589
No.Carolina	9	225	108	307125
No.Dakota	10	220	107	260308
Ohio	10	314	79	946820
Oklahoma	10	396	171	769562
Oregon	11	258	132	331535
So.Carolina	17	304	147	945677
So.Dakota	15	281	129	322784
Tennessee	11	446	126	720354
Texas	16	571	235	748352
Utah	11	313	155	920317
Vermont	17	358	178	476773
Wyoming	14	170	88	589417
TOTALS	354	11526	5065	19839834

April, 1984 through
FEBRUARY 85

TECHNICAL ASSISTANCE
YEARLY TOTALS

	TA Days	Systems Assisted	Population Served	Compl.	O & M	Manage.	Solved	Referred	No Change	Unknown
Alabama	97	48	221358	7	46	3	29	2	20	0
Arkansas	128	344	722232	6	53	285	45	8	227	66
Colorado	112	250	1062639	33	135	82	207	1	41	1
Florida	104	242	577847	59	130	55	22	56	163	3
Georgia	104	176	1014835	1	176	6	13	3	161	0
Illinois	94	221	213490	1	218	2	15	4	202	0
Indiana	131	209	427512	0	86	123	9	3	36	161
Iowa	172	258	386865	17	194	46	144	11	63	39
Kansas	125	281	462669	133	58	90	147	19	95	20
Kentucky	110	231	3111059	108	76	62	81	2	33	111
Louisiana	111	178	554956	30	137	12	76	15	84	3
Maine	109	313	447339	60	98	155	133	7	170	3
Minnesota	116	288	298030	26	264	39	70	1	104	114
Mississippi	112	377	409135	178	171	28	285	0	15	77
Missouri	111	208	662016	28	69	110	121	2	77	8
Montana	146	323	381541	56	180	111	157	11	82	70
Nebraska	130	465	908269	276	415	30	297	51	117	6
New Mexico	75	260	875438	61	111	86	120	39	72	26
New York	105	246	385498	222	11	0	222	5	3	0
No.Carolina	119	127	324999	6	83	38	33	3	57	34
No.Dakota	131	359	1045336	9	231	116	74	10	99	162
Ohio	177	430	3800970	305	81	44	348	0	38	44
Oklahoma	123	217	394918	45	89	83	194	0	1	22
Oregon	114	433	464079	240	223	103	181	34	87	129
So.Carolina	128	378	2037163	107	345	195	174	187	138	17
So.Dakota	113	322	1380549	40	181	101	178	3	140	1
Tennessee	117	204	838989	178	94	117	164	1	33	6
Texas	122	176	713000	7	70	99	36	1	122	17
Utah	113	252	987650	91	146	54	47	18	38	149
Vermont	213	363	673592	26	335	2	41	21	256	41
Wyoming	91	127	315387	29	103	23	18	2	79	26
TOTALS	3705	8306	26044360	2380	4609	2300	3681	520	2853	1356

Mr. DONAHUE. Thank you, sir. We are happy to be here. I have with me, today, Brian Burns, from Vermont, who works in the Northeast area. He may have a comment or two that he may want to make as we talk this morning.

Senator STENNIS. All right. Do you wish to make a statement?

Mr. BURNS. I will talk after Russ talks. Thank you, Senator.

Senator STENNIS. I am sorry. I didn't hear you.

Mr. BURNS. Senator, I will let Russ speak first. He will mention the western section; I will mention the eastern section.

RURAL WATER

Senator STENNIS. All right. Let's proceed, gentlemen.

Mr. DONAHUE. On behalf of the National Rural Water Association and the State of Utah and the Northeast, I am happy to be here this morning, Senator, to talk to you about our program.

I would certainly like to thank the committee for its support that it has rendered to us in the past. We feel that we have a unique program that helps the small water systems across this country as well as the areas that we represent.

Our unique program has been in effect now approximately 5 years. And we deal with all the small water systems throughout the country and 33 States and help them work out their drinking water problems and try to bring technical assistance and training to those people, who really don't have a chance, in many cases, to take advantage of opportunities in those fields that come their way.

In the State of Utah, we work very closely with the health department. We have a joint effort. We deal with about 380 systems which are serving people of less than 10,000. The bulk of those systems serve between 500 and 1,000 population.

Much of their expertise is volunteer help and really don't have a chance to attend many training sessions that are in large cities and the philosophy of our program is to take technical assistance to those people and also provide training for them in the water field so they don't have to travel too far.

We feel we have a good program. We work closely with all the water agencies in the State. It is a joint effort to try to bring safe drinking water to the rural areas, not only in Utah, but in Mississippi and other areas in the great Nation that we live in.

Brian, you might mention the Northeast and the things you are doing there.

Mr. BURNS. Thank you, Russ.

Senator, the Northeast, as you are probably well aware, has specific problems in that we have mostly older antiquated systems. In the small towns and villages, they seldom have full-time operators to help run these systems.

We are the only help that they get, as the person goes around and helps them and saves them thousands upon thousands of dollars in engineering fees and other fees that they have.

It is a protection of the Federal Government, we feel, and the billions of dollars that the Federal Government has invested in the local water systems and continuing to invest in the local water systems is where we do the outreach, the training, and actually working with these to see that one small part doesn't destroy the millions of dollars that are buried in the ground.

I believe that is about our testimony here. I think we would be glad to answer any questions, if you have any, Senator.

We are hoping that the program would expand over the years, since we are only in 33 States. We do have demand from other States and we can only spread into those States as fast as Congress wishes us to do this.

Senator STENNIS. Gentlemen, this is very interesting to me.

This is a new field, to a large degree, for me to get into. I have been on most of the subcommittees of the Senate but I have never been on this one. But I have been in the other phases of water problems, water supply.

Anyone from the West, they can do more with a little water than anyone else I have ever run into.

I am glad to hear about the assistance you give to these little towns. They can't afford all this high-priced machinery and everything that goes with modern requirements but to have you looking at it, why, that makes a lot of difference.

FMHA RURAL WATER GRANTS AND LOANS

I have a question here: You state here that the National Rural Water Association feels like it actually, "reduces the demand for FMHA rural water grants and loans."

As you know, that program has been proposed for significant reductions. I think it is more than "significant reductions," it is practically liquidated.

Can you elaborate on the effects that field contact with small systems has on the FMHA program?

Mr. DONAHUE. Brian, why didn't you field that one?

Mr. BURNS. Certainly.

Senator, the FMHA has tremendous demands in the growth and the outreach for these small towns to upgrade their systems.

We are able to go into these small systems and at times give them a little bit of engineering help and a little bit of help to defer some of the problems and bring them into compliance so they don't have to apply for a large FMHA grant or a loan program.

We are able to solve it in a much more expeditious and inexpensive manner, because we are there, daily or monthly or weekly or whenever they need us, and they don't have to go to the heavy engineering costs and revamp their whole system.

Of course, we are strongly in favor of keeping that FMHA program in loans and grants because that is the only help these small systems get.

As you know in your State, Senator—and by the way, I like to say that it is a pleasure to testify in front of you after reading about you for all these years—but in your State, particularly, you have these small systems in the outlying areas that have tremendous demands on FMHA and they never have enough money.

Senator STENNIS. Yes.

Mr. BURNS. We are able to reduce that demand.

Senator STENNIS. Well, thank you very much. Do you have anything further, gentlemen?

Mr. DONAHUE. I don't think so, at this time, Senator.

Senator STENNIS. We do have to move along.

Mr. BURNS. Thank you, Senator.

Senator STENNIS. Now, are there any others here that wish to testify before this subcommittee? The Chair hears no one answer.

We are going to take a recess now, or I can adjourn, whichever the staff suggests. The committee will now stand in recess, subject to the call of the chairman or someone acting for the chairman.

With that, we turn the matters back over to our valued staff members, here.

I thank you again, all of you. I am sure you will get attention here on these matters. Good luck.

Mr. DONAHUE. Thank you.

Mr. BURNS. Thank you.

[A brief recess was taken.]

STATEMENT OF EDITH FULTON, PRESIDENT, NEW JERSEY EDUCATION ASSOCIATION, ON BEHALF OF THE NATIONAL EDUCATION ASSOCIATION

ACCOMPANIED BY WAYNE DUBOSKY

Senator LAUTENBERG [presiding]. The meeting will come to order. Mrs. Fulton, if you want to have anyone else join you there.

Ms. FULTON. Wayne Dubosky is with me.

Senator LAUTENBERG. It seems difficult for us to be so formal——

Ms. FULTON. Yes.

Senator LAUTENBERG [continuing]. Because we know each other for such a long period of time, Edith. But we are now in subcommittee session and we welcome you here.

We are very much interested in hearing your testimony. Thus, we are reconvening the subcommittee now for the purpose of hearing what you have to say. We welcome you to proceed in as concise a fashion as you can, but covering all the details that you have.

Ms. FULTON. Yes.

Senator LAUTENBERG. So welcome, Ms. Fulton. We would like to hear your testimony.

SCHOOL ASBESTOS

Ms. FULTON. Thank you. We have a rather extensive piece of testimony that we have submitted and also will be giving you a brief supplemental piece that speaks about some of the concerns in New Jersey.

So really I am just going to try to paraphrase the longer testimony and try to do it in a very brief amount of time.

I am Edith Fulton and I am president of the New Jersey Education Association, which represents public school teachers and other school personnel and higher education faculty throughout New Jersey.

We are an affiliate of the National Education Association. And I am pleased to have this opportunity to appear before you this morning to speak on an issue of vital importance to the health and well-being of our children, ridding our schools of the menace presented by asbestos.

Because we believe that this is a top national priority, we urge you to fully fund the School Hazard Abatement Act Program with a $50 million supplement for fiscal year 1985 and a $100 million appropriation for fiscal year 1986.

We think asbestos should be a Federal priority and we come before you today seeking Federal assistance and the remedy of the school asbestos problem because we believe it to be a national public health and environmental hazard.

The cleanup of toxic waste sites is considered enough of a national priority for the Federal Government to have established a Federal superfund administered by the EPA. Why should not the cleanup of school asbestos, which presents health hazards to millions of students and school personnel, be afforded comparable national attention and resources?

Clearly, the cost of making all our schools safe from asbestos are enormous. Estimates from the Education Department and the EPA range into the billions. States and local school districts are just not capable of bearing these costs.

Adequate Federal funding for this cleanup must be given top priority by the Congress. While initial funding of the $50 million for fiscal year 1984 was approved last year, the administration has not requested any funds for either fiscal year 1985 or fiscal year 1986.

Why is asbestos a concern? For the last 10 years, health experts, Government officials, and the media have made known that crumbling or friable asbestos that releases loose fibers into the air can cause illness and can even lead to death.

Before the alarm over asbestos became public, thousands of school buildings had been constructed or renovated using asbestos-containing materials. Builders considered these materials top-notch for their fireproofing and electrical and acoustical insulating properties.

However, medical research has proven that once inhaled, asbestos fibers may remain in the lungs indefinitely and can lead to various painful and life-threatening diseases, including asbestosis and lung cancer and others.

As we know from research collected from the EPA, asbestos hazards are present in more than 31,000 school buildings across the country. This means that some 15 million students and 1.4 million school employees are being exposed to these hazardous materials.

We believe that children are at great risk. A health hazard of asbestos in schools is particularly serious since children that are exposed are more likely to develop cancer than are adults similarly exposed, because they tend to be more active than adults.

Children inhale and exhale more often and since they often breathe through their mouths—which may be a fact that you didn't know—they circumvent the body's normal, nasal filtering system and, therefore, they are particularly likely to inhale greater amounts of asbestos fibers.

Children have higher rates of metabolism and cell development that also may increase their risk of developing asbestos-related disease.

Furthermore, since children have a greater remaining life span than adults, they are more likely to develop such diseases during their lifetimes. And we know that this is a silent killer that can be with you 15 to 30 years before it manifests itself in a life-threatening situation.

In 1979 the EPA set up a Technical Assistance Program to encourage schools to voluntarily identify and remove asbestos hazards and it also initiated formal rulemaking on asbestos in schools that same year.

But unfortunately, the EPA has refused to issue regulations establishing clear standards for determining when asbestos is hazardous and requiring abatement when it is.

This means that schools are required only to inspect for dangerous asbestos materials. Removal or abatement is still totally voluntary.

We believe it is imperative that Congress enact legislation mandating that the EPA establish regulations determining when asbestos is a health hazard and requiring that schools abate such hazards.

We also believe that local school district officials have been—or have the best interests of their students and personnel at heart when it comes to the treatment of friable asbestos in school buildings.

But by June 1983, we had 83 percent of local school districts completing inspections. However, it is clear that many of these officials have not moved ahead on abating the asbestos problem as swiftly or in as permanent a way as possible.

Clearly, one of the main reasons that school districts have not been able to complete abatement of asbestos is cost. A 1984 study completed by the National School Boards Association entitled "Local School District Support, a Federal Role To Resolve the Asbestos Uncertainty," noted that more than half the school districts reported that they would remove friable asbestos if 100 percent of the cost were available in the form of Federal grants. Another third said that we would remove friable asbestos if 80 percent of the cost were available in Federal grants.

Senator LAUTENBERG. Excuse me. You say "another third" or "one-third"?

Ms. FULTON. Well, 100 percent, of course—I guess if you are taking a 100 percent figure——

Senator LAUTENBERG. Right.

Ms. FULTON. They all, of course, would do it with Federal grants.

Senator LAUTENBERG. Yes. You said "another third," we can't have 100 with one-third.

Ms. FULTON. Right. One-third of that same group said that if the cost were funded up to 80 percent, that they would be able to remove it.

One-fourth said they could solve the problem if 50 percent of the cost were at least provided through Federal grants. And from this random sample of school districts, one can infer that a Federal grant program providing for at least 50 percent of the cost of asbestos removal would be broadly supported by local education agencies.

If I may just interject, Senator, in New Jersey, as may not be true in some other States, every—almost every school budget is subjected to a public vote. In a few cases there are appointed boards that goes to a board of estimate.

But for the most part the public—it is the only budget in the State that the public has a shot at. So when school budgets are reduced or not passed—in this case, we had a high percentage of passage, about 86.7 percent passed this spring.

But when budgets are defeated and funds are cut, it usually comes out of building maintenance. They don't want to touch programs. Salary accounts, obviously, are not touched for many reasons.

And so we find in many cases, in addition to the asbestos concern, buildings are not being maintained and asbestos is probably low on the list because it does require a considerable amount of funding to take over these projects.

So that is an additional problem in the State of New Jersey. There is also no getting around the fact that asbestos abatement is a expensive proposition and estimates from the Education Department, the EPA, and the National School Boards Association placed the cost into the billions.

The statistics that I have cited point to the dire need for immediate action to approve the $50 million supplemental appropriation that was given—that would be for 1985 and the additional $100 million for 1986.

The $50 million appropriated by Congress for 1984 is certainly not adequate to cover past problems let alone deal with problems from school districts that may be facing this in the future.

Two hundred and eighty-five local education groups submitted priority one requests on behalf of 726 schools representing 1,004 projects. In total for all applications, 986 local education groups requested funds for 7,184 projects in 4,348 school buildings.

And this data is based on completed requests from 38 States. When the final tabulations come in, we are sure that the numbers will be substantially higher.

I would also add that school districts had less than 2 months from the receipt of the applications until it was due to be submitted to the State's Governor. If more time were available, we feel, that there would have been more applications.

I believe that—we believe that one critical element in removal of asbestos hazards is the provision of Federal leadership and adequate Federal funding. For this reason, NEA strongly recommends the Congress to fund current law authorizing the abatement of friable asbestos in the schools fully.

We also believe asbestos contamination in our schools to be a major health hazard that necessitates immediate and curative action. The magnitude of this life-threatening problem requires a joint effort by this Congress, the EPA, the State and local officials, and the educational and medical communities, because children's lives are at stake.

I do have some supplemental information on New Jersey that I would give to you. Or perhaps if you have some questions that would lead us——

Senator LAUTENBERG. We invite you to submit anything that you have in this connection for the record. We will accept it and it will be a permanent part of the history of this review.

If you have something else to add, if not I have a couple of questions.

I would compliment you, Ms. Fulton, on the breadth of your testimony and the importance that you place on it. I think you know that you and I share these concerns.

I am very much sensitive to the problems posed by friable asbestos in our schools. I grew up in Paterson, NJ, and Paterson is where so much of the discovery of the danger of asbestos was made as a result of having an asbestos plant in the community.

And a good friend of mine who had worked there, I think, less than a couple of months, as a youngster, about the age of 16 or 17, after being a practicing lawyer for about 20 years was called by the union who had employees there to advise him to see his physician because the exposure to asbestos was so dangerous.

By the time he did, he had already developed lung cancer, unknowing to himself, and he passed on in a very short period thereafter.

And on Sunday, I addressed a group of parents and children who had survived chemotherapy after contracting cancer in Summit, NJ, in the Overlook Hospital. And one need only see what happens to a child when a horrible disease like that strikes.

And I think that all of us have a responsibility, as much as possible, to see that we protect our children. We spend billions in defense and in medical care to protect the lives and the well-being of our citizens.

And no one feels the anguish more than a parent or a friend or a brother or sister of a youngster that comes down with the kind of disease condition that can result from exposure, we believe, to asbestos.

So I share your concerns. I am determined to try to preserve whatever funding levels we can. There is not the full comprehension of the risks here.

And I was particularly struck by the reference in your testimony, despite the fact that community votes in New Jersey and on school budgets are often either parent stimulated or citizen stimulated, and many of them are aware of the risks—not only to the children, by the way, which we are focusing on at this moment, but the employees of buildings, staff of the schools, that schools must retreat from their interests in removing this material as soon as the budget squeeze is on.

Given funding support, 100 percent of the schools would get after it. And you and I know, very well, that throughout New Jersey, and throughout this country of ours, there are many school systems that just can't raise the funds to take care of these tasks.

Ms. FULTON. Yes.

Senator LAUTENBERG. And I know you are right, Edith, when you say that the first thing that goes are those things that are least obvious, like building maintenance and asbestos removal.

So that there we have it, with people that are concerned, that aware of the risks, unwilling to commit the funds to remove it, even though it is that dangerous.

And I think we have to find a way to do this. I would like to ask you just a couple of questions, Edith.

Edith, do you feel that EPA is doing an adequate job in handling the $50 million appropriation made last year?

Ms. FULTON. Well, I think that it is inadequate at best.

Certainly, we know that—they estimate themselves that one third of the Nation's schools are affected by friable asbestos and we know in New Jersey we had a real fiasco last September when we could not even identify, with an accurate list, those schools affected.

In some cases, you know, projects were underway. And in many cases at that point our State has appropriated $10 million a year for the next 4 years, which will be a total of $40 million toward helping districts remove the asbestos.

But it was in such a chaotic state because everything was voluntary. Districts were fined by EPA, I understand.

In fact, I have a very personal interest in it. My husband worked in a school district in Ocean County that was fined $30,000 by the EPA for not, since 1978, letting their employees know that there were dangerous conditions existing—to, maybe, go off a little bit from your question, but to say why I have such a personal interest.

My husband worked there and I lost him 2 years ago. And I believe that direct contact with asbestos both he and the men he worked with for 9 years in a school that had asbestos, are gone.

That is a personal crusade that I have taken up on behalf of that particular district. But we also have instituted a State suit to at least have some medical tests available for employees that have been exposed to asbestos.

I think EPA, perhaps, has been dragging its feet, not to put some teeth in the regulations. It is all voluntary. And the notice could be posted on the garage door in the back of the school and they could say they have complied. That, to me, is not the right to know——

Senator LAUTENBERG. As far as you are concerned——

Ms. FULTON [continuing]. That you are in danger.

Senator LAUTENBERG. It needs more diligent review, more focus and——

Ms. FULTON. And some teeth.

Senator LAUTENBERG. And more muscle.

Ms. FULTON. Right.

Senator LAUTENBERG. To get these things done.

Ms. FULTON. And certainly, the money is necessary.

Senator LAUTENBERG. Yes. Because even with $50 million, that is totally inadequate. I think New Jersey's applications for asbestos removal funds——

Ms. FULTON. Well, you mentioned Paterson. In Paterson alone they have applied for Federal aid for 42 projects at a cost of $3.5 million. That is one district in one State.

Senator LAUTENBERG. Out of——

Ms. FULTON. So the problem is enormous.

Senator LAUTENBERG. Out of a national availability of $50 million.

Ms. FULTON. $50 million.

Senator LAUTENBERG. Even that is at risk right now.

Ms. FULTON. I think we have $32 million alone, if you take in all the districts in New Jersey that have been—have sought part of that Federal appropriation. So it isn't going to stretch very far.

Senator LAUTENBERG. Do you have any idea what the total funding request, nationally, would be? You mentioned that in your testimony.

Ms. FULTON. Oh, nationally. Several hundred million dollars on a nationwide basis as far as the requests. I believe that probably—since you wouldn't honor, necessarily, 100 percent of all requests, that would be to take care of——

Senator LAUTENBERG. OK, the point that I think should be made for the record is that even at $50 million, we are not doing anything heroic, in terms of what the need is or what our responsibilities as Members of the Congress are as parents and concerned citizens.

Do you think, Edith, that there have been instances where schools have had to make the decision between books and education programs and health, asbestos cleanup?

Ms. FULTON. Oh, I wouldn't doubt it.

In fact, when parents would call with concerns, would call us because they were so frustrated, perhaps, dealing with the State agencies at the time, and I went in support of the parent group where a school board member, you know, stood up and said, "Our schools are safe."

The testing methods have been inadequate. In some cases, school districts, because there have been such loose regulations, went ahead with projects, I mean, having their own custodial workers tear friable asbestos off pipes with no protection.

We know that is a very delicate process to remove it safely, so the people who are removing it are not exposed. In some cases I almost feel that our staff and students are in greater jeopardy because the projects went ahead.

Senator LAUTENBERG. Yes.

Ms. FULTON. Willy-nilly.

Senator LAUTENBERG. Yes.

Ms. Fulton. Than they would have been if they were carefully formulated and there were some rules that people had to——

Senator Lautenberg. There is enormous controversy about the quality of the removal contractors. There are problems with insurance for those——

Ms. Fulton. Right. Right now, I believe, that is holding up all the pending projects that were to be done this year—is that they cannot get any liability insurance to cover those firms and therefore firms are not opting to do their work.

Senator Lautenberg. I am going to let you go. I would say this to you: Your testimony is great. I salute your efforts on behalf of the students and the staff and the people who populate school buildings.

We have this problem. It is only a small but significant part of the total problem of public buildings, et cetera, including private buildings. It is something that we have to be aware of.

I would urge that you, among the members of your organization, try to work harder to stimulate public response to this problem. I don't think there is enough of an awareness in the community of how serious it is. I don't think we hear enough about it here in Washington or even at the State level in terms of the concerns of the families and the risk is not always apparent.

But I would ask you, Edith, please pass word along to those with whom you have contact, the PTA, all other organizations with whom you work closely, to sound the alarm. There is a fire raging out there and we ought to do something about it.

Ms. Fulton. Well, we certainly thank you for the opportunity to testify and also for a word from such a prestigous person in our State—certainly, would make public awareness that much more effective.

Sometimes parents, now, who are raising the issue over it are labeled as "crazies," because it is not tomorrow that people are going to be affected. It might be 20 years on into their life span. And yet parents are concerned.

And we thank you for your efforts in that department.

Senator Lautenberg. You are welcome. And thank you. Bye, bye.

Ms. Fulton. Thank you, Senator.

[The statement follows:]

STATEMENT OF EDITHE A. FULTON, PRESIDENT, NEW JEREY EDUCATION ASSOCIATION, ON BEHALF OF THE NATIONAL EDUCATION ASSOCIATION

My name is Edithe A. Fulton. I am president of the New Jersey Education Association, which represents public school teachers, other school personnel, and higher education faculty throughout New Jersey. NJEA is an affiliate of the National Education Association (NEA).

I am pleased to have this opportunity to appear before you this morning to speak about an issue vital to the health and well-being of our children — ridding our schools of the menace presented by asbestos.

Because we believe this to be a top national priority, <u>we urge you to fully fund the Asbestos School Hazard Abatement Act (ASHAA) program with a $50 million supplemental for FY85 and a $100 million appropriation for FY86.</u>

<u>Asbestos: A Federal Priority</u>

Mr. Chairman, we come before you today seeking federal assistance in the remedy of the school asbestos problem because we believe it to be a <u>national public health and environmental hazard</u>.

The clean-up of toxic waste sites is considered enough of a national priority for the federal government to have established a federal `Superfund' administered by the EPA. Why should not the clean-up of school asbestos, which presents health hazards to millions of students and school personnel, be afforded comparable national attention and resources?

Clearly, the costs of making all our schools safe from asbestos are enormous. Estimates from the Education Department and the EPA range into the billions. States and local school districts are just not capable of bearing these costs. Adequate federal funding for this clean-up must be given top priority by the Congress. While initial funding of $50 million for fiscal year 1984 was approved last year, the Administration has not requested any funds for either FY85 or FY86.

Asbestos: Why the Concern?

For at least ten years, health experts, government officials, and the media have known that crumbling or friable asbestos that releases loose fibers into the air can cause illness and even lead to death. Before the alarm over asbestos became public, thousands of school buildings had been constructed or renovated using asbestos-containing materials. Builders considered these materials top-notch for their fireproofing and electrical, thermal, and acoustical insulating properties.

However, medical research has proven that, once inhaled, asbestos fibers may remain in the lungs indefinitely and can lead to various painful and life-threatening diseases, including asbestosis, lung cancer, and ~~mesothelioma.~~ others

As we know from research collected by the EPA, asbestos hazards are present in more than 31,000 school buildings across the country. This means that some 15 million students and 1.4 million school employees are being exposed to these hazardous materials. A March 1985 Government Accounting Office (GAO) sample of 36 school districts found that more than 50 percent of their 4,062 school buildings have had friable asbestos, and that as of October 30, 1984, more than 1400 still did.

In my own state of New Jersey, the problem is so widespread that the NJEA has filed petitions with the State Education Commissioner demanding the prompt removal of all dangerous asbestos from every affected school in the state. Moreover, we have filed a class-action suit in the state courts on behalf of all employees who have been exposed to friable asbestos in the course of past or present employment. Our goal is to establish a trust fund to pay for periodic medical examinations in the hope that any health problems caused by the ingestion of asbestos will be caught early.

Children at Greater Risk from Asbestos

The health hazard of asbestos in the schools is particularly serious since children who are exposed are more likely to develop cancer than are adults similarly exposed. Because they tend to be more active than adults, children inhale and exhale more often, and, since they often breathe through their mouths, they circumvent the body's normal nasal filtering system. Therefore, children are particularly likely to inhale greater amounts of asbestos fibers.

Children's higher rates of metabolism and cell development also may increase their risk of developing an asbestos-related disease. Furthermore, since children have a greater remaining life span than adults, they are more likely to develop such diseases during their lifetimes. The net effect of these facts spells real waste: since most asbestos-related diseases take fifteen to forty years to manifest themselves, childhood exposure to asbestos can result in an adult being stricken in the prime of life.

As the health dangers of asbestos became clearer throughout the decade of the 1970s, the EPA began to take action. In 1973, it issued regulations under the National Emission Standards for Hazardous Air Pollutants (NESHAPS) that banned the use of spray-applied asbestos-containing materials for fireproofing or insulating purposes. In 1975, the ban was amended to include all methods of asbestos application. In 1978, the ban was further broadened to prohibit all uses of asbestos in buildings.

In 1979, EPA set up a technical assistance program to encourage schools to voluntarily identify and remove asbestos hazards. It also initiated formal rulemaking on asbestos in the schools that same year. Subsequently, EPA issued final rules requiring that by June 28, 1983, all public and private elementary and secondary schools inspect for asbestos, analyze any friable materials, and notify school employees and students' parents of the presence of any friable asbestos found.

Unfortunately, EPA has refused to issue regulations establishing clear standards for determining when asbestos is hazardous and requiring abatement when it is. This means that schools are required only to inspect for dangerous asbestos materials; removal or abatement is still totally voluntary. We believe it is imperative that Congress enact legislation mandating that EPA establish regulations for determining when asbestos is a health hazard and requiring that schools abate these hazards. Accompanying these regulations must, of course, be federal assistance to the schools to help in the clean-up. School districts must be encouraged to carry out the best and surest clean-up — not the cheapest. A look at what states and local school districts have accomplished in the asbestos abatement drive in the past several years — and what they have not — will clearly show why we must have federal regulations and federal financial assistance.

States and Localities Begin Clean-up — First Steps Only

Mr. Chairman, we believe that local school district officials have the best interests of their students and personnel at heart when it comes to the treatment of friable asbestos in school buildings. By June 1983, some 83 percent of local school districts had completed inspections. However, it is clear that many of these officials have not moved ahead on abating the asbestos problem as swiftly or in as permanent a way as possible. For example, according to an October 1984 EPA study, `Evaluation of the EPA Asbestos-In-Schools Identification and Notification Rule,' in only 44 percent of schools where inspection revealed some form of friable asbestos had abatement work been completed. By January, 1984, only some eleven percent of all local school districts were in complete compliance with EPA's asbestos inspection rule. Of those school districts with friable asbestos present, only four percent reported compliance with all aspects of the ruling.

I should note that the EPA evaluation study pointed out visible weaknesses in compliance efforts. For example, the study noted that a follow-up survey to the initial sampling of school districts showed that nearly all the information they had previously gathered was consistent with their later survey, except for one variable, the number of schools with friable materials. The study stated:

> `One reason for this disparity is that schools do not know whether to report friable materials which have been encapsulated or enclosed. It was also discovered that LEAs missed friable materials in 25 out of 90 schools previously inspected by LEAs and the majority (in 20 of the 25 schools) of overlooked friable materials was (sic) limited to boiler rooms. This suggests that LEAs do not realize that boiler rooms require inspection. This finding also indicates that the survey estimate of the number of schools with asbestos-containing materials (AFCM) may be an underestimate.'

With further regard to compliance with the EPA ruling on asbestos abatement, the GAO study cited earlier, `School District Officials Face Problems In Dealing With Asbestos In Their Schools,' had details on a sample of 36 districts. The study noted that of the 29 school districts responding about the types of abatement actions completed, 16 had removed the asbestos-containing materials. The study went on to state that while school districts believed `the most appropriate abatement actions (i.e., removal, encapsulation, enclosure, or special operations and maintenance) were taken in the majority of cases,' EPA and state officials did not always agree. The study went on:

> `School district officials believe that 90 percent of the actions taken were the most appropriate. State officials believe that 54 percent of the actions were most appropriate, that 8 percent were not the most appropriate, and that they had no basis to judge 38 percent of the actions. EPA officials believe that 28 percent of the actions were most appropriate, that 13 percent were not the most appropriate, and that they had no basis to judge 59 percent of the actions.'

In addition, the GAO study noted that while school district officials believed abatement work had been adequately done, EPA and state officials were generally less satisfied with its adequacy. Some school district officials stated as well that they believed that their past actions dealing with asbestos, most often encapsulation, had not been the most appropriate. This means that future expenditures will be needed by these districts to fully rectify the problem.

Funding of Asbestos Abatement: A Major Problem

Clearly, one of the main reasons that school districts have been unable to complete abatement of asbsetos has been cost. A 1984 study completed by the National School Boards Association (NSBA) titled, 'Local School Districts Support a Federal Role to Resolve the Asbestos Uncertainty,' noted that

> 'More than half the school districts reported that they would remove the friable asbestos if 100% of the cost for removal was (were) available in the form of federal grants. One third said they would remove the friable asbestos if 80% of the cost was available in federal grants. And one fourth said they could solve the problem if 50% of the cost was provided through federal grants. From this random sample of school districts, one can infer that a federal grant program providing for at least 50% of the costs of asbestos removal would be broadly supported by local education agencies. School systems alone do not have the necessary resources to meet the costs of asbestos abatement, encapsulation and removal.'

The GAO study noted that the 36 districts they surveyed reportedly spent $51,631,622 on their schools through September 1984, while 29 of the districts reported plans to spend nearly $300 million more to complete asbestos abatement in the future — an average of $10.7 million per district.

Congressional Action Needed

Mr. Chairman, there is no getting around it. Asbestos abatement is an expensive proposition. Estimates from the Education Department, the EPA, and the National School Boards Association place the cost into the billions. The statistics I have cited point to the dire need for immediate action to approve the $50 million in supplemental for FY85 and an additional $100 million for FY86. The $50 million appropriated by Congress for FY84 is not adequate to cover past problems, let alone to deal with problems school districts may face in the future.

For example, the EPA's Activity Monitoring Report for ASHAA through March 15, 1985 (the most recent information available to us) shows that the Priority I school districts — those with the worst asbestos problems and the most financial need — have already applied for some $65 million in aid under the Asbestos

School Hazards Abatement Act. Two hundred eighty-five LEA's submitted priority one requests on behalf of 726 schools representing 1004 projects. In total, for all applications, 986 LEA's requested funds for 7184 projects in 4348 school buildings. These data are based on completed requests from 38 states. When the final tabulations from all the states are done, the numbers will be substantially higher.

I would also add that school districts had less than two months from receipt of the application until it was due to be submitted to the state's governor. If more time were available, more schools would have applied.

If we are to move ahead to resolve this national public health problem, additional funding must be made available.

We share the concern expressed by many about the quality of previous abatement work. However, I would like to point out that those schools which receive federal assistance to help in asbestos abatement must comply with EPA guidelines on abatement and contractor selection to be eligible for funding. But school districts `going it alone' or with state funding are subject to no such requirements, and are therefore more likely to do a poorer job of abatement. The NSBA study cited earlier in my statement confirms this:

> `The school districts were asked whether or not they would support EPA regulations to compel removal or abatement of friable asbestos materials from schools. More than half responded in the affirmative. This response reflects the fact that administrators and school boards feel caught in the middle. They are obviously looking for a clear-cut compulsory decision to be made other than at the school district level that will get them out of the hot seat, i.e., protect them from future liability, and insure to the extent possible, that once the problem is taken care of, that it will not have to be redone over and over.'

We urge the Congress to direct EPA to establish uniform national standards on asbestos abatement for all schools. NEA has been working with the authorizing Committee to develop such legislation.

NEA Has Active Role in Asbestos Abatement

Mr. Chairman, in 1978 the NEA Representative Assembly, the highest policymaking body of the organization, adopted a resolution calling for the protection of students and school personnel from the hazards of dangerous chemicals and materials such as asbestos used in the construction and maintenance of education facilities. The Representative Assembly urged that standards and safeguards be established and programs enacted for the prevention and elimination of asbestos health hazards. During the last seven years, NEA has been committed to meeting the threat of asbestos contamination. Specifically, we:

- mounted efforts to identify accurately the scope of asbestos contamination problems in the schools;
- presented testimony before the U.S. Congress and state legislatures calling for stronger laws, enforcement mechanisms, and adequate funding to alleviate asbestos-related health problems;
- presented testimony before EPA at regional hearings throughout the country;
- filed comments on proposed EPA rules and submitted criteria for the promulgation of more effective regulatory language;
- participated in coalition efforts to move EPA to hold public hearings and accept written comments on its proposed school asbestos rule;
- instituted legal action in states to recover abatement expenses from asbestos manufacturers.

The 1984 Representative Assembly expanded its commitment and determination to address asbestos health hazards in the schools by adopting the following language:

Asbestos Pollution

> The NEA shall provide a mechanism for collection of data to substantiate if the health of school employees who have worked in asbestos-polluted environments has been harmed. Further, the NEA shall investigate and publicize benefits for which members are now eligible as a result of working in an asbestos-loaded environment, and shall seek measures that will protect the financial security of members who are affected by this problem.

State Legislation on Removal of Asbestos from Schools

> The NEA shall urge its affiliates to work for state

> legislation to provide funding for those districts that have taken or will take corrective action to remove asbestos from their schools.

NEA state affiliates are involved in legal battles in the courts to force asbestos manufacturers to bear some of the financial burden of banishing asbestos contamination from the schools. NEA affiliates are also seeking enactment by state legislatures of strict asbestos abatement statutes.

In addition, the NEA is developing for members' and affiliates' use a handbook entitled, `Asbestos in Our Schools: Taming the Silent Killer.' This handbook will give NEA leaders a solid body of facts and some suggested courses of action for dealing effectively with asbestos health hazards in the schools.

Conclusion

Mr. Chairman and Members of the Subcommittee, we believe that one critical element in removal of asbestos hazards is the provision of federal leadership and adequate federal funding. For this reason NEA strongly urges the Congress to fund current law authorizing the abatement of friable asbestos in the schools fully.

We also believe asbestos contamination in our schools to be a major health hazard that necessitates immediate and curative action. The magnitude of this life-threatening problem requires a joint effort by this Congress, the EPA, state and local officials, and the education and medical communities. Children's lives are at stake.

Thank you.

STATEMENT OF JOHN F. WELCH, PRESIDENT, SAFE BUILDINGS ALLIANCE

ASBESTOS HAZARD

Senator LAUTENBERG. Now, we have another witness, Mr. Welch, president of the Safe Buildings Alliance.

Mr. Welch, you have been forewarned that time is flying. I understand that you have a fairly condensed statement. I appreciate it. Thank you.

Mr. WELCH. Thank you, Senator. I am John Welch, president of the Safe Buildings Alliance.

Senator LAUTENBERG. Excuse me one second. Thanks very much. I am sorry to interrupt your eloquent testimony. Please continue.

Mr. WELCH. Thank you, Senator. When members of this committee conferred last year on the need for Federal funding, I think one message emerged loud and clear, and that was that there is an essential need for EPA to develop more precise guidelines to define when hazardous conditions exist within schools and other buildings that contain asbestos to ensure that Federal assistance is directed at the needy schools and that the funds would be used cost effectively to reduce hazards.

Since that time, the alliance, the Government Accounting Office, and a host of other educators and associations and unions have implored EPA to set such standards, all to no avail.

What we are seeing, absent Federal standards, particularly in your State, is that these States are moving toward establishing very precise air monitoring based standards and well defined decisionmaking protocols to make the abatement decisions that are so needed.

Air sampling, which is a position that EPA does not embrace at this juncture, has become, at the State level, a very important part of hazard assessment as well as financial allocation for State funding programs.

In New Jersey, there is a State asbestos policy which delineates these decision protocols and predicates abatement or the need for remediation on air monitoring levels.

There are bills before the California Legislature that would establish an asbestos tolerance standard. Comparable legislation exists and is moving as well through the Rhode Island Legislature, as well as the Colorado General Assembly.

And in toto, I think that the legislative dynamic that is underway here mirrors, in many respects, the proliferation of worker's right to know, and community's right to know, the laws.

Some years ago—where again, absent Federal standards, States were jumping into the breach to fill this void that has been created—air monitoring, based on optical or electron microscopy, in our judgment, and the judgment of many scientists, holds far more promise for objective consistent hazard assessments than the process of visual inspection of eye-balling that currently exists.

We urge the committee, as it considers appropriations under the School Hazards Abatement Act, to earmark a percentage of that amount for researching air monitoring techniques for determining when abatement actions ought to be undertaken.

We appreciate the opportunity to be here and would be happy to answer any questions that you might have.

Senator LAUTENBERG. I am sorry that we have to condense this into such a short cycle. That is where we are and, therefore, we invite you to submit your full statement, obviously, for the record and anything else that you have. I know that you have been very aggressive in this program and we respect and appreciate that action. The air monitoring program is the one that you suggest is the better way to go.

Certainly one could not disagree that is far better than just visual inspection, because you cannot see these small fibers in the air. We understand that EPA claims that air monitoring is not a valid means of evaluating asbestos exposure in the schools.

Again, once more for the record, restate your response.

Mr. WELCH. Our responses that monitoring—air monitoring serves us so well in so many other areas.

When an OSHA inspector goes into a brake-lining plant, he does not visually inspect or eye-ball the plant. He takes in an air monitoring measurement. Other environmental statutes, drinking water is a——

Senator LAUTENBERG. Is it a complicated mechanism to handle?

Mr. WELCH. We think it is fair to state that it need not be complicated. If it can be used by OSHA in factories or for environmental——

Senator LAUTENBERG. Are these mobile things? Are they relatively small in size and light in weight? Or is it something that can be moved around fairly frequently?

Mr. WELCH. I think that the answer to that question is, "Yes."

One concern that has been articulated is about the cost, particularly of electronic microscopic analysis which many people feel is the best.

But our response to that is, if we are making decisions about the safety of children and custodians and people in schools and if we are making decisions—which the NEA spokesperson suggested—involves hundreds of millions of dollars of potential Federal funds or State funds, it certainly does not seem inappropriate to spend thousands of dollars—$1,000, $5,000, to determine whether or not that action ought to be undertaken in the first place.

Senator LAUTENBERG. I agree.

Mr. Welch, thank you very much.

The statements of Mr. Welch, together with the statements of Jamie Hoyte, secretary, Massachusetts Executive Office of Environmental Affairs; William Sylte, vice president, State and Territorial Air Pollution Program Administrators; Robert E. Malpass, P.E., chief, Bureau of Solid and Hazardous Waste Management, South Carolina Department of Health and Environmental Control, and vice president of the Association of State and Territorial Solid Waste Management Officials; and Robbi J. Savage, executive director, secretary-treasurer, Association of State and Interstate Water Pollution Control Administrators, will be placed in the hearing record.

[The statements follow:]

STATEMENT OF JOHN F. WELCH, PRESIDENT, SAFE BUILDING ALLIANCE

Thank you, Mr. Chairman. My name is John Welch, President of the Safe Buildings Alliance (SBA).

SBA is a non-profit association of companies that formerly manufactured asbestos-containing products for building construction. The Alliance was formed to promote a rational, scientifically-sound response to concerns raised by the presence of asbestos-containing materials in schools, specifically:

-- Adoption of uniform air-monitoring standards to determine when friable asbestos-containing products in schools may pose an unreasonable risk.

-- Establishment of strict, but fair, training and certification programs for inspectors and contractors involved in assessment and corrective actions.

-- Practical, cost-effective alternatives to the hazardous and costly process of indiscriminate removal of asbestos-containing products.

When members of this Committee conferred last year on the need for Federal funding for school asbestos abatement, one message emerged loud and clear. Let me quote:

> [I]t is essential for EPA to develop more practical guidance to assist school officials in assessing hazards and evaluating appropriate abatement responses. These guidelines should help to ensure that Federal assistance is directed to schools with the most serious problems and only for abatement projects that cost effectively reduce asbestos hazards. In addition, these guidelines should assist states in developing realistic priority lists limited to schools with serious asbestos problems.

Eight months later where are we with respect to these guidelines? In a word, nowhere. The Alliance has repeatedly urged the Environmental Protection Agency (EPA) to establish comprehensive safety standards for asbestos abatement -- to no avail.

The Government Accounting Office (GAO), as it did in 1982, recently criticized EPA's asbestos in schools program. Of particular note in its report to the House Subcommittee on HUD-Independent Agencies was the conclusion:

> ...considerable uncertainty exists about the appropriateness of actions selected and the quality of the work being done.

The GAO report goes on to suggest "establishing definitive guidelines for assessing hazards, and developing better technical guidance and assistance" to improve the effectiveness of asbestos abatement programs.

The Centers for Disease Control (CDC), in recommendations to State health officials, summarized well the plight of schools. CDC noted that EPA has placed the heavy legal burden of administering the asbestos in schools program on local educational agencies and lay public members without sufficient guidance. CDC stressed that a "consistent national approach is essential" and stated:

> An action level of 10,000 f/m^3 [0.01 f/cc] may be useful as a guideline for monitoring a building with potentially hazardous surfaces as part of a comprehensive asbestos program or during abatement work, maintenance, etc.

While CDC pointed out that this action level was not a recommended occupancy or "safe" level, the agency endorsed it as "helpful to authorities who make risk management decisions when the general public is potentially exposed..."

Even more illuminating is what is happening in State health agencies and legislatures.

- o New Jersey has a state asbestos policy that delineates decision protocols for categories of asbestos-containing materials. Air samples are taken as part of hazard assessment and a 100 ng/m^3 (0.003 f/cc) action guideline is used to confirm the need for remediation.
- o California, which passed a $10 million abatement fund last year, is now considering two bills that would set an "asbestos tolerance standard" (A.B. 2040) and "standards for minimum levels of asbestos concentration in ambient air in public buildings" (A.B. 2070). Such standards also would be a basis for allocating abatement funding.
- o Rhode Island legislation (85-H 6260) would set a 0.01 f/cc "interim air quality standard for asbestos exposure."
- o Colorado's General Assembly is considering a bill that would develop "standards for a maximum allowable asbestos level ... which will protect human health."

This proliferation of state regulations and legislation is reminiscent of the manner in which "workers right to know" and "community right to know" laws emerged overnight around the country. And for the same reason -- because a Federal agency is either unable or unwilling to address what is clearly a national problem.

These state initiatives also embody the essence of nearly all environmental and occupational health laws -- monitoring of the airborne contaminant (asbestos). Risk is posed by presence of airborne asbestos -- not by presence of asbestos-containing materials. It is axiomatic that exposure levels need to be known if limited resources are to focused on conditions most worthy of attention.

The lack of standards from EPA has created an environment of emotionalism and misinformation regarding the asbestos in buildings issue. This will continue to result in confusion and inappropriate or misguided corrective actions that may actually increase asbestos levels to building occupants and abatement workers alike. Such precipitous removal activity not only wastes financial resources, it also often creates risks where none previously existed.

I appreciate the opportunity to participate in this hearing. I would be glad to answer any questions.

Attached to my oral testimony is a summary of the scientific and practical background of the asbestos in buildings issue.

APPENDIX

I. The Factual Background.

Formulation of appropriate regulatory programs must begin with a clear understanding of the factual background to the asbestos in buildings issue. Asbestos is a mineral found in rock formations throughout the United States and the world, which in the past was often the best material available to comply with building code requirements. For many years, asbestos was considered the "magic mineral." The word itself comes form the Greek work for incombustible, which accurately describes one of its most valuable characteristics, fire retardancy. This extraordinary property prompted the use of asbestos wherever fire protection was essential, most notably in ships and buildings. One of the ironies of the present controversy is that asbestos was often required by national and local building codes to protect and save lives from fire.

As a result of both widespread natural occurrence and commercial use, people are regularly exposed to asbestos from a variety of sources including outside and indoor air and water supplies. The Ontario Royal Commission on Asbestos has stated that the "majority of exposures of occupants in buildings with substantial amounts of friable asbestos would be to fibre levels less than 0.001 f/cc representing the highest likely exposure."[1] Thus, concluded the Commission, "[e]ven a building whose air has a fibre level up to ten times greater than that found in typical outdoor air would create a risk of fatality that was less than one-fiftieth the risk of having a fatal automobile accident while driving to and from the building."[2]

The Royal Commission further found that "only a fraction" of the many asbestos removal projects in Canada and the U.S. "was warranted by the risks posed to building occupants," and that the "crash nature" of asbestos removal work has resulted in "needless expenditure" and a "probable increase in risks." The government had failed in its responsibility, the Commission concluded, "to explain to the public that apprehension was not justified in many instances because risks were insignificant."[3]

The counter-productive results of many asbestos removal activities have been confirmed by numerous studies that have found asbestos levels increase after removal -- even in some "very well performed" removal operations.[4] It is thus very important that any regulatory program consider the need for well-controlled abatement that does not cause more harm than it prevents.

II. Regulations to Address the Asbestos in Buildings Issue.

As the New Jersey and Ontario panels found, in accord with similar earlier findings by an expert panel in the United Kingdom, no significant risks are posed by the presence of asbestos-containing products in most buildings.[5] At the same time, precipitous removal actions can cause very high asbestos exposures for removal workers and building occupants.

Any regulation for asbestos in schools must therefore address two major issues: (1) assuring that buildings are properly inspected and assessed and that sound decisions are made that require asbestos removal only when necessary and when less dangerous, more cost-effective, and less disruptive measures would not be more appropriate; and, (2) assuring that when removal or other major abatement activities take place, removal workers and building occupants will be amply protected from the inevitable high exposures during such operations and form long-term contamination caused by removal.

If regulations are to serve the necessary goal of assuring that concern about asbestos-containing materials does not lead to precipitous, counter-productive actions, several basic concepts need to be incorporated into the regulations. The most important of these are discussed below.

Hazard Evaluation: Essential to any regulatory scheme is the monitoring of airborne asbestos as part of the process of assessing building conditions. Risk is posed by presence of airborne asbestos -- not by presence of asbestos-containing materials. It is axiomatic that exposure levels need to be known if limited resources are to be focused on the conditions most worthy of attention.

The need to be aware of airborne exposure levels in buildings before expensive, disruptive corrective activities are initiated has been emphasized by the previously mentioned studies in Great Britain and Canada that have found exposures in most buildings are so low that no significant risks are posed. If hazard assessment is conducted without reliance on air monitoring, a significant likelihood exists that overreaction will occur.

The need for monitoring airborne asbestos to guide asbestos assessment has recently been emphasized by a number of public health groups. The Centers for Disease Control, for example, have recommended an action level of 0.01 fibers/cc to focus resources on those areas most likely to pose any significant risks.[6/] Similarly, the New Jersey Asbestos Policy Committee decision framework chooses an action level of 100 nanograms per cubic meter (ng/m^3) to "indicate where unusual levels of asbestos are present, and thus to focus resources for re-surveying and remediation on the buildings where current hazards are found.[7/]

Asbestos Control Plans: Beyond the need to monitor airborne asbestos, there is a need to recognize that proper maintenance and inspection procedures are often the best available means of assuring that asbestos exposure levels do not pose significant risk. Similarly, repair of areas where asbestos-containing materials have been damaged may often be the most effective means of control.

Even for those unusual situations where repair or specialized maintenance procedures will not be fully adequate to control asbestos fiber release, removal is only one of several viable options. Either enclosure or, in some cases, encapsulation will be as effective in reducing the potential for fiber release as removal. These alternative remedial measures are also less likely to lead to disruption of existing material that may contaminate the building.

Given the need for highly qualified persons to make decisions on the most cost-effective measures for controlling exposures, it is essential that trained personnel be involved in the inspection or hazard assessment process. In addition, it is important that such assessors be independent of asbestos abatement contractors. Far too often abatement contractors have been involved in the assessment process and have encouraged building owners to make costly removal decisions that often have increased exposures when not properly performed.

Qualified Abatement Contractors: Without guarantees that contractors will employ state-of-the-art abatement techniques that have been developed only in recent years, it is likely that asbestos levels in buildings will increase, rather than decrease, especially after removals. As noted above, in many states, haste to conduct removal operations has lead to hiring unqualified contractors and just such counter-productive removal activity.

1/ Report of the Royal Commission on Matters of Health and Safety Arising from the Use of Asbestos in Ontario, 577 (1984).

2/ Royal Commission Briefing Notes, at 15-16.

3/ Id. at 27-28.

4/ D. Pinchin, "Asbestos in Buildings," Report to the Ontario Royal Commission on Asbestos, at 7.12 to 7.13 (June 1982).

5/ United Kingdom Advisory Committee, Asbestos, Vol. II at 17 (1979).

6/ Bernstein, R. S., "A Review of the Scientific Basis for EPA's School Asbestos Hazard Program, with Recommendations to State Health Officials," at 13 (Oct. 1984).

7/ N. J. Interim Report, supra, at 31.

STATEMENT OF ROBERT E. MALPASS, P.E., VICE PRESIDENT, ASSOCIATION OF STATE AND TERRITORIAL SOLID WASTE MANAGEMENT OFFICIALS

Mr. Chairman and honorable subcommittee members, my name is Robert Malpass and I am Chief of the South Carolina Department of Health and Environmental's Bureau of Solid and Hazardous Waste Management. My office administers the solid and hazardous waste regulatory program in South Carolina, as well as the state's hazardous substance site remediation (Superfund) activities. I am pleased to testify today with the National Governors' Association and representatives of the other Executive Branch Officials on the subject of state resource needs.

I am here today as a representative of the Association of State and Territorial Solid Waste Management Officials. ASTSWMO is a non-profit professional association which speaks for the directors of state solid and hazardous waste management programs. Situated at the state level, our members have a unique perspective on the problems of waste management. State officials are in constant contact with the individuals who produce and handle potentially health threatening wastes. They are also the first to hear the concerns of citizens living near areas of actual or potential contamination.

Our members play an essential role in ensuring that solid and hazardous waste is generated and disposed of in a safe manner. In addition to ensuring state program compliance with federal requirements, state officials must satisfy state solid and hazardous waste management rules. In many instances, these state requirements may be more stringent than the federal regulations. States also contribute funds, staff time, and other resources to clean up Superfund sites and other state sites which do not make the federal list of priority sites.

The significant attention paid to solid and hazardous waste management in the Administration's proposed budget for fiscal year 1986 pleases ASTSWMO. The healthy increase from last year's President's Budget proposal of $47 million to the $65 million recommended this year reflects the importance the American public assigns to proper governmental regulation of waste disposal. In addition, the Association is pleased with the levels of funding the Administration has requested for EPA's Superfund program.

Last year, the Administration asked for, and your subcommittee appropriated, $47 million for FY 85 state RCRA grants. With information from an ASTSWMO study completed in the Spring of 1984 reporting states had only 30% of the resources they needed to implement the most basic RCRA regulations, this subcommittee subsequently approved some $10 million in additional RCRA funding bringing the total to $57 million for FY85. This year, the President is proposing $58 million for state RCRA grants, with an additional $7 million in grant funds to be reserved for a separate program to regulate underground storage tanks.

ASTSWMO agrees with NGA and the Administration that maintaining the baseline funding provided by Congress in FY85 for the upcoming fiscal year is important. State hazardous waste officials also understand the public's concern over a balanced federal budget and the serious decisions your subcommittee must make weighing needs and available monies. For that reason, ASTSWMO supports the levels of funding for state hazardous waste programs recommended in the President's FY 86 budget request. Nevertheless, ASTSWMO would like to share with you estimates of the level of effort provided by the proposed funding level of $58 million, and of how much states project it will cost to implement additional components of the amended Resource Conservation and Recovery Act program.

Based on a second ASTSWMO State Needs Report completed in the fall of 1984, if the assumptions EPA are currently using to project state workload requirements are accurate, and if state workload requirements were the same this year as last, states could probably satisfy the minimum RCRA requirements with the proposed funding for FY 86. But, unfortunately, as my testimony will show, neither of the above two conditions will hold.

EPA Workload Assumptions

The first ASTSWMO study, presented to this committee at this time last year and finalized in July, showed states lacked 64% of the resources currently at their disposal to carry out their RCRA duties. In September, ASTSWMO conducted a follow-up study, replacing the state's estimates of the work RCRA required them to do with EPA's own estimates. The survey still found states lacked over 20% of the staffing they needed.

Why the discrepancy? State officials believe EPA has seriously underestimated what it will cost the states to implement the RCRA program. In the area of enforcement, the federal agency's workload model projected conducting compliance inspections once every 14 years for "non-major" treatment, storage, and disposal facilities (TSDFs). Many states felt more frequent inspections were necessary.

The requirement of the recently enacted amendments to RCRA that all TSDFs be inspected every two years shows Congress, too, wanted more frequent inspections.

In our members' opinion, it costs a state much more to process a permit than what EPA estimated. For example, EPA's pricing factors do not sufficiently account for the high level of public involvement in the permitting procedure. Neither do EPA's projections adequately account for additional state permitting considerations, such as siting requirements, or environmental impact review.

Changes to Federal Statute

Last year, Congress passed the Hazardous and Solid Waste Amendments of 1984, more commonly known as the RCRA amendments. New areas brought under regulation, and stiffer requirements for already regulated activities, will substantially elevate state responsibilities.

Both ASTSWMO studies were conducted prior to enactment of the RCRA amendments. Estimates of staffing needs were based on the workload conditions which prevailed at the time. Though time, and availability of reliable data, precluded a full-scale research effort, ASTSWMO interviewed key states with experience in four new components of RCRA: regulations for underground storage tanks (LUSTs); risk assessment requirements in permitting; new requirements applying to "small quantity generators" (generators of greater than 220 lbs., but less than 2,200 lbs. of hazardous waste each month); and expanded Subtitle D (solid waste) requirements. ASTSWMO has summarized the data supplied and compiled brief analyses, which are contained in four briefing papers attached to my testimony.

Leaking Underground Storage Tanks

Recognizing that leaks of hazardous materials stored in underground storage tanks posed a serious threat to public health, Congress directed EPA to institute a comprehensive regulatory program for underground tanks containing petroleum and other hazardous substances. The Agency must set regulations governing release detection, correction, and prevention, financial responsibility regulations, and new tank performance standards. While it is uncertain that all states will ultimately implement the regulations promulgated by EPA, some states will certainly elect to do so.

The states of New York and Mississippi both have experience responding to underground storage tank leaks in their respective states. New York already has an existing program to regulate underground tanks. Based on the responses of these two states, the $7 million designated for state LUST programs in the President's FY 86 budget will not fully achieve Congress' goals in this area. Mississippi, currently without an established program, estimates it will take between 10 and 30 work years, at a cost of between $400,000 and $1.2 million, to establish a LUST regulatory program in accordance with federal standards. New York reports that it would cost $2.5 million to run its LUST program.

Permitting with Risk Assessment

Before enactment of last year's RCRA amendments, federal law did not require a systematic assessment of risk of exposure as a prerequisite for a hazardous waste facility to obtain an operating license. Under the new law, applicants for a permit to operate a hazardous waste landfill or surface impoundment must submit a report on the potential for the public to be exposed to waste handled at the facility.

It is the states' job, once EPA authorizes them, to review exposure assessments. These reports are lengthy and complex. From them, permit reviewers must determine how, in what way, and to what extent humans might be exposed to substances handled at or in transit to and from the facility. Since the provision applies not only to new facilities, but also to the 1330 existing RCRA-regulated facilities, the number of exposure assessments which will have to be reviewed is potentially very large.

New Hampshire already has formed a team of professionals with expertise in a wide range of related fields to review health assessments. In contrast, Texas, with no staff specifically funded for this purpose, has been conducting health assessments on an ad-hoc basis. New Hampshire notes that it will take its Risk Assessment Unit 1.5 workyears to conduct health assessments as required by RCRA. Texas concludes it will take five work years and $175,000 to conduct similar assessments for its state's landfills.

Small Quantity Generators

As part of the RCRA amendments, Congress required EPA to develop regulations governing the generation, transportation, and disposal of "small quantities" of hazardous waste. States will be responsible for implementing the regulations governing the 600 to 660 thousand SQGs EPA estimates exist nationwide. Because such small businesses may not even be aware that the government considers substances they handle to be hazardous, states will have to set up comprehensive notification, compliance and enforcement programs.

Texas judges it will have to invest nine work years and $500,000 to notify and inspect SQGs within its borders. In California, local agencies have implemented the SQG regulatory program since 1982. It took two counties nine work years and $650,000 to carry out the first phase of a notification and inspection program. There are a total of 58 counties in California.

The additional responsibilities imposed by the new RCRA provisions affecting SQGs will further increase state RCRA program costs.

Solid Waste Management

It is our members' view that proper solid (non-hazardous) waste management is just as grave an issue as proper management of hazardous waste. Just finding space to dispose of the tremendous volume of solid waste our society produces is a growing concern. Existing landfills are approaching maximum disposal capacity. Due to strong public opposition, states have had difficulty expanding existing, or locating additional, disposal facilities.

The sheer magnitude of the solid waste problem is cause for concern. EPA estimates there are an average 275,000 operating Subtitle D facilities nationwide. In comparison, according to EPA, there are approximately 1,900 land disposal facilities operating under Subtitle C. Congress' own Office of Technology Assessment projects there are roughly 621,000 closed or operating Subtitle D facilities nationwide.

States have traditionally had primacy for the regulation of solid waste. The 1976 RCRA authorized funding for states to identify the open dumps within their borders and develop state waste management plans in accordance with federal criteria for solid waste disposal. But Federal funding for Subtitle D activities was cut off in 1980 and has not been appropriated since.

The 1984 amendments to RCRA recognize the crucial role states play in solid waste management. They authorize up to $40 million for state programs to review and upgrade regulations for solid waste facilities, to implement state solid waste plans, and to investigate methods to extend the useful lives of sanitary landfills.

Although some state solid waste programs have survived the cut in federal funding, the majority have suffered staff cutbacks and have had to curtail working with both industry and the public on waste reduction and resource recovery. State inspection and enforcement activities have suffered most heavily.

California and Connecticut are two states which have managed to retain viable solid waste programs. California reports that the state and local governments combined, will consume 95 workyears at a cost of $3.38 million, to inspect and permit Subtitle D facilities in FY85. In Connecticut, the state agency spent $600,000 on solid waste activities in the previous fiscal year (1984). It needs an additional $300,000 to effectively implement the new RCRA requirements.

In summary, RCRA places primary responsibility for solid and hazardous waste management with the states. Congress recognized that major loopholes in solid and hazardous waste management had to be closed when it passed amendments to RCRA last year. To offset the increased state workload, the RCRA amendments authorize significant additional funding for state activities.

Many states already contribute funds in excess of the 25% match required by EPA. This was sufficient to manage hazardous waste disposal in accordance with the regulations in existence prior to FY 85. However, maintenance of the funding for state RCRA grants at the FY 85 level will not allow for expansion of this nation's hazardous waste program as required by the 1984 amendments to RCRA.

I want to thank you for this opportunity to share with you state estimates of the cost of implementing the RCRA program. I would be happy, now, to respond to any questions you might have.

Association of State and Territorial Solid Waste Management Officials
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STATE RCRA NEEDS FY 86

RCRA Component: Leaking Underground Storage Tanks (LUST).

- Threat: Underground storage tank leaks are an extremely serious environmental problem. They have a direct impact on groundwater resources and on public health through the contamination of drinking water.
- Congress: addressed this threat, when, as part of the RCRA amendments of 1984, it directed EPA to institute a comprehensive regulatory program for underground tanks containing petroleum products and other hazardous substances.
- States: Consistent with the rest of the RCRA program, states, pending EPA approval, have primary responsibility for implementing the LUST program. Their RCRA program resources already overextended, states currently lack staff to implement additional new LUST components.
- Budget: The Administration's FY 86 budget request of $7 million for state LUST grants is inadequate. States with LUST programs already planned estimate costs of between $1 and $2 million per state program to initiate and maintain LUST programs up to federal standards.

State Experiences:

- States will have to implement RCRA-mandated regulations governing release detection correction and prevention, financial responsibility regulations, and new tank performance standards. Many states have already made efforts to reduce risks and costs associated with leaking underground storage tanks. ASTSWMO conducted detailed interviews with two states. Their experiences provide a valuable base from which to project the average cost of a first-year state LUST program.

Mississippi:

- Contact: Jack McMillan, Director, Division of Solid Waste, (601)961-5171.
- Program: The State Department of Natural Resources currently manages a program to respond to leaks from underground storage tanks. The state responds each year to 20 or more incidents where tanks are leaking.
- Resource Need: Resources to implement a component of the state LUST program emphasizing leak prevention are sorely needed. The state hazardous waste program director estimated he would need 10 to 30 person-years to effectively manage such a LUST program in his state. The salary, fringes, and overhead of one state employee are $40,000. This means it would cost between $400,000 and $1.2 million per year to run the state program.

New York:

- Contact: Paul Sausville, Division of Solid and Hazardous Waste (518)457-4349.
- Program: In accordance with a state law enacted in 1983, the State Department of Environmental Conservation will regulate aboveground and underground storage of petroleum products. State regulations providing technical and procedural standards for all aspects of storage and handling are scheduled to take effect this summer. The program will include certification of registration and fee payments; a compliance program for tank testing and inspections of new tank installations; and a publicity campaign to increase tank registrations.

- Resource Need: The state has identified 200,000 underground tanks with a capacity of 1100 gallons or more, half of which store petroleum products, and half of which store other hazardous substances. The state has identified 900 leaking tanks. The state estimates a first year cost of $1 million to staff a 13 person petroleum storage tank regulatory program. However, tank registration fees are expected to raise 70 percent of the funding. Expansion of the state's program, pursuant to RCRA, to include regulation of tanks containing hazardous substances, would cost an additional $1.5 million. Projected shortfall: $1.8 million.

Recommendation:

- If states are to implement the national LUST program consistent with Congressional intent and EPA guidelines, increased federal assistance for state LUST programs must be forthcoming. The $7 million designated for state LUST programs in the President's FY 86 budget will not get the job done. Based on the above information, half of the Administration's proposed grant would fund just three states. Indeed, these estimates indicate that the LUST program will be comparable in size to the hazardous waste regulatory program. With this in mind, ASTSWMO recommends a significant increase, over and above the Administration's $7 million offering, in state LUST grant funding.

RCRA Component: Permitting and Risk Assessment

- Problem: The potential for the surrounding population and environment to be exposed to contamination from hazardous waste disposal facilities varies from site to site. Yet, federal law, prior to enactment of the Solid and Hazardous Waste Amendments of 1984, did not require a systematic assessment of risk of exposure for a hazardous waste facility to obtain an operating license.

- Congress: A provision in the 1984 RCRA amendments requires exposure assessments as part of the RCRA permitting process for hazardous waste landfills and surface impoundments. An owner/operator of such a facility must submit a report on the potential for the public to be exposed to waste handled at the facility.

- States: State agencies which have received EPA authorization to manage this component of their RCRA program will be responsible for reviewing exposure assessments. The new requirement presents a significant additional strain on already understaffed state RCRA programs. If states lack the resources, it will be difficult to make risk a meaningful factor in the permitting process.

- Budget: According to ASTSWMO studies, the Administration's FY 86 budget request for state RCRA grants would just give states enough resources to handle current (pre-reauthorization) RCRA duties. States would have no additional personnel to process increasingly complex permits.

State Experiences

- Exposure assessments are complex. States must report how, in what way, and to what extent humans might be exposed to substances handled at or in transit to and from the facility. Since the provision applies not only to future permit applicants, but also to the 1330 landfills or surface impoundments currently regulated under RCRA, the number of permit applications is potentially very large. Interviews ASTSWMO conducted with two states which currently have programs designed to assess the environmental health risks from treatment, storage, and disposal facilities (TSDFs), may provide information on the cost of a state exposure assessment program.

New Hampshire

- Contact: Dr. Brian Strohm, Chuck Knox, Environmental Health Risk Assessment Unit, Division of Public Health Services, (603)471-4609

- Program: four full-time staff members, assisted by up to 12 associates located throughout the state government, review risk assessments made by applicants for new or expanded TSDFs. The team, able to draw on experts in toxicology, epidemiology, industrial hygiene, environmental health, and environmental risk analysis, examines the effects on human health, behavior in the environment, and the routes for human and environmental exposure of particular contaminants in question.

- Resource Need: the team will need between one and three work months for each risk assessment prepared by applicants for facility permits. The state estimates between four and six applicants will submit risk assessments, requiring up to 1.5 workyears.

Texas

- Contact: Wiley Osbourne, Director, Program Management Division, Texas Department of Health, (512)458-7271.

- Program: Two agencies, the Department of Health and the Department of Water Resources, share permitting responsibilities. The Department of Health is responsible for conducting health assessments. To date, assessments have been done on an ad-hoc basis with no staff funded for these activities. In each of the 20 permit applications reviewed to date, a health effect problem has been identified.

- Resource Need: There are 600 treatment, storage, and disposal facilities in Texas. Though the state believes exposure assessments should be required for all facilities, RCRA only requires assessments for the 357 which are landfills or treatment facilities. It will take two man-days to review the health information contained in each submitted application (a total of 2 man-years for all 357 facilities). The state estimates 1/3 of this group will require a detailed health assessment, costing the state an additional six man-days for each assessment (total of 600 man-days). The state estimates it will need an additional five man-years, at a cost of $175,000 ($500 each facility) to comply with the RCRA requirement. The figure would be larger if the provision were extended to include storage facilities, as the state feels it should.

- Recommendation: States will have to spend more time to process the more complex permit review requirements mandated by RCRA. The Administration's FY 86 budget allocation for state RCRA grants does not incorporate this new additional state expense. If states are to implement the risk assessment requirement as Congress intended, and EPA will demand, Congress should appropriate funds to supplement the $58 million FY 86 Administration proposal for state RCRA grants.

RCRA Component: Small Quantity Generators

- Threat: Prior to 1984, a generator who produced less than 1000 kg/mo of hazardous waste could legally discard his waste in sanitary landfills, septic systems, or sewage treatment plants. Designed to handle non-hazardous waste, many of these facilities still do not have adequate groundwater protection systems or groundwater monitoring capabilities. Such disposal practices pose potentially severe contamination problems.

- Congress: In recognition of this problem, the Hazardous and Solid Waste Amendments of 1984 reduce the 1000 kg/mo allowance to 100 kg/mo. EPA is to develop regulations for the generation, transportation and disposal of such waste.

- States will be responsible for implementing the regulations governing the thousands of small businesses previously outside the purview of federal hazardous waste control laws. Because such establishments may not even be aware that the government considers substances they handle hazardous, states will have to set up comprehensive notification, compliance and enforcement programs.

- Budget: The Administration's FY 86 budget request for state RCRA grants ignores the additional state workload which will result from bringing small quantity generators under RCRA regulation. Without federal aid, many states will find it impossible to even inform all SQGs, which include gasoline retailers and dry cleaners, that the law affects them.

State Experiences

- Many states already regulate small quantity generators. 14 stater require generators of over 100 kg/mo of waste to manifest their wastes. 20 states require SQGs to dispose of their wastes in licensed hazardous waste facilities. Consequently, state experience should prove instrumental in developing a national SQG program. Both Texas and California have recently taken steps to implement regulations for SQGs. Their experiences should provide a basis from which to determine first-year state costs to initiate SQG regulatory programs.

Texas

- Contact: Wiley Osbourne, Director, Program Management Division, Texas Department of Health, (512)458-7271.

- Program: The Department of Health shares solid waste regulatory duties with the Department of Water Resources. Responsible for all commercial, institutional and community-generated waste, the DOH regulates most of the state's SQGs. Though the state does not yet have an operable SQG program, it has developed an extensive implementation plan, and currently has a grant proposal for funding to develop the plan pending before U.S. EPA.

  Of the estimated 80,000 SQGs in the state, as many as 10,000 are thought to fall under the new provisions of RCRA. The state will use public education and industry-wide assistance to increase awareness of the notification and handling requirements for SQGs. The agency has already located and notified over 2500 SQGs.

- Resource Need: The proposed grant currently under EPA review includes: an information program requiring $150,000 and 3½ work years to provide general information to specific business and industry groups on the SQG requirements; a technical assistance program requiring $100,000 and 2 work years to help industries to comply with the law; and a compliance and monitoring program requiring $160,000 an 3½ work years to provide an enforcement presence and to ensure that violations are resolved when voluntary compliance actions are not taken. The total estimate for the state's SQG program is 9 work years each year for the next 3 - 5 years. Total first year cost would be close to $500,000.

California

- Contact: David Marx, Senior Hazardous Materials Specialist, San Diego County Department of Health, (619)236-2222. Deborah Hanlon, Senior Sanitarian, Ventura County Department of Health, (805)654-2813.

- Program: A program to regulate SQGs, implemented at the county level, has been in place in California since 1982. Heavily industrialized San Diego County regulates about 2500 generators of between 100 and 1000 kg/mo of hazardous waste. Ventura County, with a more rural make-up, regulates about 800 SQGs. In the first year of the programs' existence, all facilities were identified and "inspected". The inspection emphasized education and consultation solely. This year, the counties will start their second round of inspections, with a greater focus on enforcement.

- Resource Need: It took three work years to identify and permit the Ventura County SQGs at a cost of $250,000. The San Diego County SQG program has a staff of six specialists and a budget of $400,000. There are a total of 58 counties in California.

Recommendation

- EPA will soon develop regulations for small quantity generators, based on the provisions in the RCRA amendments of 1984. States which have experience in this area must be included in the regulation development process. If Congress accepts the Administration's recommendation to provide no funding for state SQG programs, many states will be unable to develop or implement the federally mandated regulatory programs. Congress should appropriate funds, in addition to the $58 million proposed by the President for state RCRA programs, in recognition of the additional state responsibilities imposed by the SQG requirements.

RCRA Component: Solid Waste Management

- Threat: As existing landfills approach maximum disposal capacity, many states face an imminent crisis. Due to strong public opposition, states have had difficulty expanding existing, or locating additional, disposal facilities.

  Without federal funds since 1981, many state solid waste programs have fallen into disrepair. Because solid waste facilities can legally accept small quantities of hazardous waste, insufficient regulation of solid waste facilities may lead to groundwater contamination. Recent studies estimate between 12 and 20 percent of the current Superfund sites were at one time solid waste facilities.

- Congress: In 1976, RCRA authorized funding for states to identify the open dumps within their borders and meet federal criteria for proper solid waste disposal. In 1980, Congress ceased funding for state Subtitle D activities. Recognizing the importance of non-hazardous waste management, the Hazardous and Solid Waste Act of 1984 authorizes up to $40 million for state programs to review and upgrade regulations for solid waste facilities, and to investigate methods to extend the useful lives of sanitary landfills.

- States: States have primacy for non-hazardous waste regulation. According to Subtitle D of RCRA, EPA is responsible for establishing national criteria, reviewing and approving state solid waste management plans, and assisting states on technical matters. Although some states have survived the cut in federal funding, the majority have suffered staff cutbacks and have had to curtail working with both industry and the public on waste reduction and resource recovery. State inspection and enforcement has suffered most heavily.

- Budget: The Administration's FY 86 budget request for state RCRA grants does not appear to contain any funding for Subtitle D activities. Without such assistance, states will be unable to implement either the 1976 RCRA solid waste requirements, or the new responsibilities which the 1984 amendments call for.

State Experiences

- State solid waste agencies are responsible for permitting all Subtitle D facilities, conducting routine inspections and follow-up enforcement action at all such facilities, and providing technical, planning, and development assistance for local projects. Though the cut in federal assistance reduced the depth of activities which the solid waste agencies in California and Connecticut could cover, both states have managed to maintain active solid waste programs. Estimates which the two states recently provided ASTSWMO may provide an indication of the additional federal assistance needed for state solid waste regulation.

California

- Contact: Keith Amundson, Coordinator, Comprehensive Plan, Waste Management Board, (916)322-6229.

- Program: The solid waste enforcement program, begun in 1978, is mandated by the state, but implemented by local governments. The state oversees local agencies which permit and inspect the 450 solid waste landfills, transfer stations, and waste-to-energy facilities in the state. The frequency of inspections varies, with officials reaching facilities located in metropolitan areas at least once a week, and inspecting facilities in rural areas once every quarter. On any given day, approximately half the facilities are in violation of one or more standards.

- Resource Need: In FY 85, local agencies will use 78 man-years and spend approximately $2.9 million, and the state will devote 5.5 man-years at a cost of $160 thousand for inspections at solid waste facilities. Local governments will spend $100 thousand to fund 4 man-years, and the state will spend $45 thousand and 1.5 man-years for permitting. In addition, the state will commit $170 thousand to provide six man-years for technical assistance and local enforcement in San Diego (where it acts in lieu of the local government).

Connecticut

- Contact: Charles Kurker, Director, Solid Waste Management Unit, Department of Environmental Protection, (203)566-3672.

- Program: The unit conducts yearly inspections of the 155 municipal and industrial solid waste disposal sites, and bulky waste sites currently operating in the state. The unit also provides technical assistance and planning, which includes permitting, assisting in the formulation of regional projects, updating the state solid waste plan, and communicating with and advising citizens.

- Resource Need: Since 1981, the program has suffered personnel cutbacks. At a minimum, inspections should be carried out at each facility four times a year, instead of at the current rate of once yearly. In the preceding fiscal year (84), the state spent over $600,000 on its solid waste program in salaries, fringes, and other expenses. The two additional environmental analysts, one extra sanitary engineer, and one extra senior sanitary engineer which the program feels it needs would cost roughly $300,000.

Recommendation

If states are to implement the more comprehensive Subtitle D provisions of RCRA in any meaningful way, they will need federal assistance. The President's FY 86 budget request for state RCRA grants does not reflect this supplemental state expense. In addition to the $58 million proposed by the Administration for hazardous waste regulation, Congress should appropriate funds for state solid waste regulatory activities.

STATEMENT OF WILLIAM SYLTE ON BEHALF OF THE STATE AND TERRITORIAL AIR POLLUTION PROGRAM ADMINISTRATORS

Mr. Chairman and members of the Subcommittee, my name is William Sylte and I am Chief Deputy Executive Officer for the California Air Resources Board. I am here today on behalf of the State and Territorial Air Pollution Program Administrators (STAPPA), where I currently serve as Vice-President and Chairman of the association's Program Funding Committee. STAPPA is the national association of state air pollution control agencies whose members have been granted primary responsibility under the Clean Air Act for protecting the public health and welfare from the adverse effects of air pollution. I appreciate this opportunity to present the views of this association on the Environmental Protection Agency's FY1986 budget request.

The Environmental Protection Agency has requested $95 million for grants to state and local air pollution control programs for FY 1986, almost exactly the level of support appropriated by Congress last year. The members of STAPPA support this request, despite our need for increased funding, because we recognize the nation's overriding concern about the size of the federal deficit. In the remainder of this testimony, I will discuss the costs and benfits of the national air program, the financial condition of state programs, and several specific concerns that STAPPA has regarding EPA's budget.

Cost and Benefits of Joint State-Federal Effort

State, local and federal governments are working in partnership to manage the nation's air quality. Each partner has specific roles and responsibilities. These roles are explicitly enunciated in the final policy document of the State-Federal Roles Task Force concerning the "EPA Policy on Oversight of Delegated Environmental Programs." This document specifies that "state and local governments are expected to assume primary responsibility for the implementation of national programs." EPA, in turn, is responsible for providing technical and financial support to "enhance states' capabilities to administer sound environmental protection programs."

Since the Clean Air Act was passed fifteen years ago, state and local agencies have spent over $2 billion on air pollution control activities. State and local governments have shouldered their responsibilities by contributing approximately two-thirds of this amount, while the remainder has come from federal funding under Section 105 of the Clean Air Act. Of course, federal, state and local governments pay only part of the total cost of air pollution control. According to the latest report of the President's Council on Environmental Quality (CEQ), the United States spends about $25 billion a year on air pollution control. This money represents a tremendous investment by the American people to improve and maintain the quality of the air that we breathe.

The investment has yielded large returns in improved public health and welfare. As a direct result of the $2 billion spent by state and local air pollution control agencies, our nation's air quality has improved significantly. There have been substantial, even dramatic, reductions in levels of health-damaging pollutants since the 1970 Clean Air Act was enacted. According to the 1983 CEQ report on environmental quality, "the nation's experience in implementing the Clean Air Act over the past 13 years has been successful to a remarkable degree." Total national emissions of most of the criteria pollutants, or their precursors, have been reduced from their levels in the early 1970's. Air quality throughout the country has improved over the past fifteen years, at the same time as the nation's population, economic activity and number of motor vehicles have risen. Although often obscured by dry statistics about declining pollutant levels, the most important benefit of all is improved public health. Millions of Americans who have illnesses that make them particularly sensitive to air pollution have had the quality of their lives improved. For many, better air quality has extended life itself. These benefits are the result of the combined efforts of many, but at the heart of the national effort are the air quality management programs of state and local agencies.

Despite this progress, significant and pervasive public health problems persist in a number of areas in the U.S. State and local agencies continue to work towards attainment of the health-based National Ambient Air Quality Standards (NAAQS) in these areas.

At the same time, our air pollution control efforts must ensure that we do not allow air quality levels to deteriorate in those areas which meet the national standards. To a large extent, the regulatory machinery which has been put in place to improve air quality must remain in full operation to maintain what has been gained.

We now have in place a mechanism, called the National Air Audit System (NAAS), to help ensure that state and local air quality programs are operating effectively. The National Air Audit System, which was developed by state, local and federal air quality managers, was first used this past year to audit 68 state and local agencies. The results of the audit show that most state and local air programs do a good job in performing their responsibilities for air quality planning and management, permitting, enforcement, and monitoring. Problems revealed by the audit are being addressed through state/federal consultation. The NAAS will be used increasingly in the future to assess and improve state and local air pollution control programs.

Status of Program Funding

In response to a Congressional request, the Environmental Protection Agency, in cooperation with STAPPA and the Association of Local Air Pollution Control Officials (ALAPCO), has recently conducted a study of state and local air program resources. Although it is still in draft form, the report makes several very important conclusions about state and local air quality control programs.

According to EPA's resource study, while most state and local agencies are able to operate at current funding levels, they are unable to perform all the activities that they believe are necessary for an effective air pollution control program. State and local air quality managers not only must work with inadequate resources for their existing programs, but they also are concerned about funding for emerging air pollution control activities. Toxic air pollution, indoor air pollution, acid rain, and woodstove emissions are prominant examples of new areas that extend beyond the traditional air pollution control program. The public is becoming increasingly alarmed about the harmful health and environmental effects of these new air pollution problems. Significant resources are needed for research and for regulatory activities to respond to these emerging problems.

Since 1970, federal assistance to state and local air quality agencies has remained relatively constant in terms of 1972 dollars. Despite level federal funding, the size and complexity of state and local air programs have increased substantially during the same time period. EPA has added many new responsibilities to state and local programs, without fully considering the increased workload and resource requirements associated with these responsibilities. In the past, when EPA has required new responsibilities state and local governments have responded by increasing their share of funding, tightening their belts, and coping as best they could. However, every agency that EPA interviewed for its funding study indicated that it is unable to assume any major new responsibilities without additional funds.

STAPPA members are very concerned about mid-year reprogramming of funds appropriated by the Congress to assist states. EPA has requested $95 million for state and local grants under Section 105 of the Clean Air Act. While this amount represents an increase of $4.3 million over the actual amount distributed in FY 1985, it reflects an actual decrease of $100,000 from the amount appropriated by Congress for FY1985. The discrepancy between actual and appropriated Section 105 funds is the result of EPA's reprogramming $4.4 million from state and local air grants for enforcement activities to programs under the Resource Conservation and Recovery Act (RCRA). Among the activities scheduled to be funded with this money were programs for motor vehicle anti-tampering, asbestos demolition, and a pilot project to control acrylonitrile, a known carcinogen. Since these funds were reprogrammed, many of these activities were never implemented. In addition to the $4.4 million reprogramed from Section 105 grants, EPA redirected over $200,000 from other areas within the air program to the RCRA program.

Other Portions of the EPA Budget

The resources provided to state and local air pollution control agencies by EPA extend well beyond the Section 105 program. For example, the products of EPA's research and development efforts are critical to state and local programs. State air pollution control officials depend upon EPA for information and data on health effects; acceptable exposure levels; vegetative, materials and ecological damage; air pollution chemistry and meteorology; and the development of new and less-costly control technologies. However, there are a number of important issues for which state and local agencies need additional assistance and guidance from EPA's Office of Research and Development, but which are insufficiently funded in the proposed budget. State and local agencies would greatly benefit from additional research on toxic air pollutants, air quality modeling, indoor air pollution and the criteria pollutants. We are working to improve communications with EPA on state priorities in the research area. If EPA better understands our needs, we are confident that the best possible use can be made of existing funds.

There is a particularly urgent need for additional research on toxic air pollutants. According to a draft EPA report on comparative risks across environmental media, the risk to human health from air toxics is far greater than the risks from other environmental problems, including hazardous waste sites and groundwater contamination. We have learned through another EPA study on "The Magnitude and Nature of the Air Toxcis Problem in the United States" that the number of excess cancer deaths from hazardous air pollutants may exceed 2,000 per year.

The public is demanding regulation of hazardous air pollutants at a pace far faster than EPA's regulatory agenda under Section 112 of the Clean Air Act. In response to this demand, over half the states and many local agencies have developed their own toxic air pollution control programs, and many agencies have indicated that they would adopt or expand an air toxics program if they had additional funding. In order to insure that these programs are based on sound science, we need much more information on the extent of the problem and ways to reduce public exposure to airborne toxics.

Training is another important area where state and local agencies are dependent upon the resources of EPA to effectively meet their air quality goals. States and local agencies face extremely frequent turnover rates of experienced engineers and technical staff. Most agencies simply cannot compete with the salaries that industry can offer its technical employees. Neither can state and local agencies afford to hire experienced staff to compensate for those who have left government employment for positions in the private sector. As a result, new employees must be brought up to a reasonable level of skill and expertise before they can adequately perform inspection and enforcement duties. Experienced personnel also must receive additional training to keep pace with regulatory revisions and the adoption of new air pollution control requirements. Although states and local air programs depend upon EPA's training program, this year's budget request calls for a decrease of over $600,000 from the amount originally appropriated last year for training in air pollution control.

EPA also provides support to state and local agencies through the sharing of technical information. This includes air monitoring assistance, modeling assistance, the operation of various clearinghouses, and guidance on available control technology. According to the proposed EPA budget for FY1986, the Air Quality Planning and Standards programs will be cut by $1.6 million, with significant reductions in emission standards and technology assessment. Regional air quality management and monitoring will be decreased by $300,000, as well the budget for mobile source compliance and enforcement activities. Stationary source enforcement will be reduced by $100,000 from last year's total. These decreases will necessarily affect state and local air quality agencies.

In conclusion, the nation's air quality program has proven itself to be successful in decreasing emissions of pollutants into the air that we breathe. State and local agencies are responsible for significant improvements in air quality. In order to maintain this improved air quality, and to meet the public's demand for controlling emerging air pollution problems, state and local agencies will need substantial financial and technical resources from the federal government. Although our resource needs exceed the funding levels included in EPA's proposed budget, the members of STAPPA acknowledge the constraints that Congress and the President must work with in developing the federal budget. Therefore, STAPPA supports EPA's budget request of $95 million for air grants to state and local agencies.

Thank you for this opportunity to testify. I will be happy to answer any of your questions.

STATEMENT OF JAMIE HOYTE, SECRETARY, MASSACHUSETTS EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS

Mr. Chairman, members of the Subcommittee, I appreciate the opportunity to appear before you this morning on behalf of Governor Michael Dukakis, Chairman of the National Governors' Association Subcommittee on the Environment. With me today are representatives of the associations of state air, water, and hazardous waste management. They will provide you with an assessment of what the proposed EPA budget means for their specific programs. But I would like to address briefly the EPA's budget in broad terms, and express the Governors' recommendation for 1986.

At their recent winter meeting, the Governors considered the dimensions of the budget problems facing the nation today and wrestled with recommendations for reducing the federal deficit. Based on these considerations, the nation's Governors have consistently urged both the Administration and the Congress to agree on a bipartisan deficit reduction package that shares the burden between domestic and national defense spending. The current NGA policy calls for holding the 1986 non-defense discretionary appropriations to the 1985 level, the national defense appropriations to the 1985 level plus inflation and a freeze on all cost-of-living adjustments, including social security. The means-tested programs, which have already been substantially reduced over the last several years, were exempted from reductions in our policy. Level funding for these EPA grants is consistent with the Governors' recommendation.

The President's 1986 request for the EPA budget is consistent with the Governors' recommendation of a freeze. With the single exception of the hazardous waste grants program - for which an increase of almost $8 million has been requested - the President's request would hold most state environmental management grants essentially level. The Administration has presented this request as an increase from the FY 1985 estimate; however, we point out that the baseline used by the Administration reflects a reprogramming of $11.5 million of $16.5 million in special funds appropriated to states for enforcement and compliance in 1985. By using the reduced funding level as a baseline, the President's request does indeed appear to be an increase, while in fact, using the actual appropriation figure from 1985, the total funds requested for state programs are held level.

It is the position of the Governors that any EPA budget freeze be keyed to actual 1985 appropriations levels, and that it not be based on a reprogramming of $11.5 million of special funds. The Governors very much appreciate your leadership in appropriating those special funds last year, and we strongly recommend that they be restored and used as originally intended in the coming fiscal year.

In addition, I would like to call special attention to the Governors' support for a continuation of the wastewater treatment construction grants program with a level appropriation of $2.4 billion. This recommendation is consistent with the Administration's request for funds; however, the Governors strongly oppose the Administration's view that no new construction be funded out of this appropriation in 1986 or thereafter. We urge the federal government to honor fully the commitment made in 1981 to continue this important program for another 10 years to help meet states' needs -- estimated in the range of $30 - $40 billion.

Finally, I would like to make it clear that the Governors have accepted the challenge of gaining control of federal spending. But we have also kept in mind - as we hope you will in making your decisions on the EPA budget for FY 1986 - both the existing and forthcoming challenges we face in protecting the environment. At the present time we are barely keeping abreast of the current programs in air, water, and hazardous waste management. Yet, we must be aware of future environmental protection issues that will soon need attention. Controlling contaminants in groundwater supplies will probably be a major responsibility of the EPA and state drinking water programs in the near future. And there is a pressing need to control toxics in all environmental media, non-point sources of water pollution, and the increasing devastations of acid rain. If federal support for state programs were reduced, most states would not be able to keep up with existing programs -- and certainly would not be able to meet these new challenges.

In making your decisions about the level of EPA support in the coming fiscal year, it is important to remember that state environmental agencies are the delivery arm for most of the nation's environmental protection programs. It is the states which actually implement environmental programs, and in the words of the EPA's Task Force on Federal-State Relations, "if the states do not succeed out on the front lines, EPA cannot succeed." The significant point is that EPA's state program grants do not represent grants in the usual sense of that term. Rather, they represent the purchase of environmental protection services in a form and manner mandated by the federal government. We believe these state grants represent the most efficient and cost-effective way of protecting public health and the environment.

Mr. Chairman, I know your task is a difficult one. I hope that in making your decisions on the EPA budget, you will keep in mind the difficult challenges we face in protecting the environment as well as the need to control federal spending. I have enclosed a copy of the Governors' position on the budget, and ask that it be included in the record with my statement.

NGA POSITION ON THE FEDERAL BUDGET

The nation's Governors are deeply concerned about the large federal deficits that are projected over the next five years. These deficits are projected to increase from $215 billion in fiscal year 1984 to $296 billion in 1990 if current policies are continued. We believe it is critical that a major federal deficit reduction program be enacted in 1985 while the economy continues to be strong. Failure to address the problem this year will require stronger measures in the future. Such measures may be extremely difficult to enact if the economy slows.

Our concerns focus on the following areas:

o The economy - Deficits of the magnitude projected (5.3 percent of GNP by 1990) will significantly retard economic growth and productivity over the next decade. First, high interest rates will maintain an over-valued dollar which will continue to restrain United States exports and stimulate imports, thereby reducing growth and contributing to the current international trade deficit of over $120 billion. Second, high interest rates will limit investment in plant and equipment, which will restrict productivity and America's ability to compete internationally over the long-run. Finally, both high interest rates and the high value of the dollar are causing distortions of national priorities and major disruptions in certain sectors of the economy, particularly agriculture and heavy industry. During the next decade, unemployment and other economic disruptions may take place if significant deficit reductions are not attained.

o State fiscal condition - The fiscal condition of states in 1984 was somewhat improved over the very difficult 1982-1983 period, when 44 states raised taxes and 43 reduced spending to balance their budgets. Due to the budget reductions over this period, state spending in 1984 was still below the real level attained in 1981. The 1985 surplus projected for states is $5.3 billion, which represents only 2.9 percent of spending. The financial markets prefer a 5 percent margin to maintain the highest ratings for state bonds. In addition, 50 percent of the balance is expected to be in only five states, with most other states either reporting very small balances or projecting deficits. Furthermore, states that rely heavily on natural resource production or agriculture are witnessing substantial erosion of their tax revenues. Funds available to the states in future years must be used to meet pressing obligations deferred by states because of the recession—infrastructure, education, environmental protection, income security, prison overcrowding and other critical needs. If the federal deficit restrains economic growth, then state revenues will be reduced, and states must reduce services or raise taxes to compensate for lower revenues. States are not in a position to absorb significant new fiscal responsibilities from the federal government.

Accordingly, the Governors urge Congress and the Administration to initiate a four point plan to restore the fiscal position of the United States as follows:

1. Adopt a freeze on federal spending for fiscal year 1986 that shares the burden among national defense and domestic spending and that does not burden already hard pressed lower income Americans. Given that the federal budget problem is now approaching a crisis situation, a freeze on spending is required.

2. Reform major nonmeans tested entitlements and other mandatory spending programs to increase the long-run control of federal spending.

3. After the budget freeze and reforms have been enacted, it may be necessary to increase revenues to reduce the structural deficit.

4. Enact procedural reforms including a balanced budget constitutional amendment.

The combination of the budget freeze and program reforms and the potential revenue increase should be consistent with the long-run goal of attaining a balanced federal budget. Interim goals of reducing the projected deficit to approximately 3 percent of GNP by 1988 and 1 percent by 1990 should be adopted.

Budget Freeze

1. Non-defense discretionary spending: Hold the 1986 appropriation level to the same level as in 1985. For the 1987-1990 period, this component should be increased at one-half the rate of inflation. This category includes programs administered through state and local governments, assistance to business and commerce, veterans programs, health care, environmental regulation, research and development, economic and military assistance to foreign governments, and most of the cost to operate the various branches of the federal government. Funding should be made available for the federal share of superfund, which should be reauthorized this year. Reductions in other programs in this category should be made to accommodate this funding.

2. National defense: Limit national defense appropriations in 1986 to the 1985 level plus inflation. For the 1986-1990 period national defense spending would be allowed to increase 1-3 percent in real terms. Defense spending has increased 61 percent between 1981 and 1985, and some slowing of this rate is appropriate to maintain cost-effectiveness in weapons systems and other procurement.

3. Selected means-tested entitlement programs: Provide full funding for the following programs: AFDC, Food Stamps, Title XX, Medicaid, SSI, child nutrition, and child welfare services. These programs have already been reduced substantially over the last four years and have already contributed their share of budget reductions.

4. Other entitlement and mandatory spending programs: Restrain the growth in these entitlement programs which are projected to increase 33 percent between 1985 and 1990. Included in this category are the medical insurance, Social Security, disability, farm price support and retirement programs funded by the federal government. A one-year freeze on all cost-of-living adjustments should also be enacted.

Long-run Reforms

After the budget freeze has been enacted, the Congress and the Administration should turn their attention to reforms which will increase the cost-effectiveness of entitlement and other mandatory spending programs. Over the long-run the goal should be to increase the controls over the federal budget. Reforms should include Medicare, federal pensions and farm programs. A new commission should be convened to look at potential long-run reforms in Social Security. It is important that reforms in these programs protect low income beneficiaries.

Revenue Measures

Even after the 1986 budget freeze and long-run reforms are enacted, it may be necessary to raise some additional revenues to attain the interim deficit targets. The revenue increase must be one that does not raise average or marginal tax rates, shares the burden fairly, and can be enacted quickly. State and local tax deductibility should not be singled out for reduction or elimination in any revenue increase.

Another important measure that the federal government could take to help reduce the deficit is to tighten enforcement of the federal tax code. Such action, which has recently been employed in many states with excellent results, would serve not only to ensure payment to the Treasury of needed revenues but would increase public confidence in the fairness of the federal system of taxation. The National Governors' Association urges that the Administration and Congress strengthen the Internal Revenue Service tax enforcement procedures—and increase resources, if necessary to pay for them—as integral to and in conjunction with efforts designed to eliminate the structural deficit.

Procedural Reforms

Procedural changes which have worked in the vast majority of states must be made so that the Administration and Congress can eliminate the deficit by the end of fiscal year 1990. A constitutional amendment requiring a balanced federal budget and providing the President with line item veto authority are needed to insure federal fiscal responsibility.

Budget Targets

In order to assure a commitment to deficit reductions, the Governors urge Congress and the Administration to agree on specific bipartisan deficit targets for each of the next five fiscal years. These deficit targets should represent a downward glide path from approximately 3 percent in 1988 to 1 percent of GNP by 1990. Congress and the President should work together to approve FY 1986 appropriations, tax and reconciliation legislation consistent with the established targets. The ultimate goal which the NGA recommends is the complete elimination of the deficit. Congress and the Administration should adopt a coherent long-term strategy that achieves this ultimate goal and meets the 1990 objective.

Adopted February 26, 1985

STATEMENT OF ROBBI J. SAVAGE, EXECUTIVE DIRECTOR AND SECRETARY-TREASURER, ASSOCIATION OF STATE AND INTERSTATE WATER POLLUTION CONTROL ADMINISTRATORS

My name is Roberta (Robbi) J. Savage and I am the Executive Director of the Association of State and Interstate Water Pollution Control Administrators (ASIWPCA). I am here to represent the States' perspective on the reauthorization of the Clean Water Act (CWA).

We commend this Subcommittee and the full Committee for your interest and support in our environmental programs, particularly for your support, Mr. Chairman, of a strong Clean Water Act. Also, we appreciate the staff you have assembled to work on this FY 86 Appropriation, and we appreciate their arranging for this opportunity to share our perspective with you.

Our Association is a national, non-partisan organization of State officials, who on a daily basis implement the Clean Water Act, and numerous other statutes as well. As professional managers of State water programs, the members of the ASIWPCA are committed to the environmental objectives set forth in the Clean Water Act.

Since our membership is concerned and involved with all aspects of the clean water program, we wish to present views and recommendations on several issues. However, I would like to initially highlight our priority funding positions:

- Funding for state management grants under Section 106 of the Act should remain consistent with last year's funding level.
- $2.4 billion for the construction of publicly owned treatment works (Section 207 of the Act) with the flexibility for States to utilize such funding as seed money for state revolving loan funds.
- A modest federal commitment in the range of House bill H.R. 8 and Senate bill S. 652 (approximately $70 - $150 million) annually for matching grants should be provided to assist States in the implementation of their nonpoint source pollution abatement projects.

As documented in the ASIWPCA report, America's Clean Water, (1984), which was developed by the States with the support and encouragement of the US Environmental Protection Agency (US EPA), tremendous strides have been accomplished in improving the nation's waters. America's Clean Water documents progress in water pollution abatement, especially following enactment of the Clean Water Act in 1972. In order to assure continued progress, it is essential that Congress reauthorize the Clean Water Act in 1985 and provide for continued funding for FY 86 to maintain the momentum toward achievement of the goals and compliance with the requirements of the Act.

From our report we have learned that of the nation's 1.8 million miles of streams, 58% are generally free of known water quality pollution problems. The remaining 42% (758,000 miles) represent the geographic locations supporting America's population and/or industrial activity. And, in a decade when the nation's population grew by 11%, accompanied by a sizable increase in the use of surface waters for industry and recreation:

- 47,000 stream miles have improved in quality;
- 390,000 acres of lakes show improved water quality;
- 142 million people were, in 1982, receiving secondary or more advanced levels of sewage treatment -- up from 85 million in 1972; and

° cities and industries have substantially increased compliance with their limits on waste discharges.

While much as been accomplished, there are still many "miles to go before we sleep," which in and of itself is a misnomer, because the work of safeguarding our people and protecting their environment is a never ending process to which the State environmental professionals have dedicated their careers. The key areas identified below are of high priority to the States:

> Section 106 provide for **State management grants** to assist the States in administration of the program at the FY 85 funding level of $64.9 million.
>
> Section 207 - provide for a minimum of $2.4 billion annually to fund **Construction Grants for Publicly Owned Treatment Works (POTWs)** and activate an effective transition from the current Federal grants to a program which authorizes the States to use the funds in innovative financing systems, including State revolving loan programs; create positive incentives and maximum flexibility for States to establish alternative programs and minimize disincentives.
>
> Section 208 - provide for the States to use certified **Water Quality Management Plans** to manage nonpoint source pollution with Federal financial and technical assistance.

EXPLANATION OF HIGH PRIORITY AREAS

I. TITLE I

Section 106 - (State Management Grants)

Funding for implementation of TITLE I of the Act previously expired; therefore, Congress is urged to reauthorize funding for TITLE I, specifically maintenance of an authorization of **$75 million annually for FY 86 and future years** for Section 106 funding of State program grants, at the FY 1985 funding level of at least $64.9 million.

II. TITLE II

Section 207 - (Construction Grants)

Reauthorization and funding of construction grants for publicly owned treatment works (POTWs) is essential to assure:

* **further progress**by local governments in meeting the mandates (enforceable requirements) and water quality goals of the Clean Water Act.

* activating an **effective transition** from the current Federal grants program to a program that emphasizes alternative financing methods which promote State and local self-sufficiency for continued compliance.

Congress therefore is urged to continue a **$2.4 billion national authorization/appropriation, as a minimum,** for construction of POTWs consistent with the 1981 Amendments. Furthermore, **beginning with FY 86,** Congress is urged to afford individual States the opportunity to use some or all of their Federal construction allotments for a broad range on **innovative project financing methods,**including both taxable and nontaxable bonds and revolving loan funds.

Congress should create **positive incentives** to encourage States to implement alternative financing programs on an accelerated schedule. In so doing, disincentives should be minimized. Congress is specifically urged to:

- **ensure timely release of all funds** for capitalization grants to State programs immediately upon release of appropriations to US EPA.

- encourage **transition to State Revolving Funds by not requiring States to match Federal capitalization grants,** recognizing that such State match is not required for existing grant funds. The budget and economic conditions of individual States could preclude or discourage transition to a loan program if State matching funds are required, especially given the uncertainty of future localized economic conditions.

- provide for **maximum flexibility** in administration of the State Revolving Funds by requiring that initial capitalization funds be used to meet the enforceable requirements of the Clean Water Act, but subsequent funds received through payments of principal and interest be available to address categories of needs identified in Section 216 of the Act.

- provide for **periodic audits** of the State Revolving Fund program conducted either internally or externally, as State resources allow.

- provide that **States which have moved forward** expeditiously with transition to a State Revolving Fund program **should not be penalized** for such action in the establishment of future allocation formulas for distribution of grant and loan funds to the States.

Section 208 - (Nonpoint Sources)

Nonpoint source pollution (NPS) is a significant portion of the total water pollution problem in the United States. The major source of nonpoint pollution includes urban, agriculture, construction, mining, and silviculture. **The degree of the problem and the priority of correcting nonpoint source water quality problems varies from State to State.** Therefore, the primary responsibility for nonpoint pollution control should remain at the State level. Most States are underway in developing and implementing programs to comply with the Clean Water Act. Since the States have water quality management plans previously certified by US EPA, funding and technical assistance should be provided by the Federal government to assist in the further implementation of these programs.

Many of the nation's waters are adversely impacted by nonpoint sources. **Substantial progress has been made** in the States to develop and implement nonpoint source and groundwater programs, but much remains to be done.

Because of the complexity of nonpoint source controls, water quality **results will not be achieved overnight.** The necessary improvements will take time to put into place and then evaluate. Constant surveillance and maintenance is needed to insure that the problem does not revert back to the original state.

The **ASIWPCA** MEMBERSHIP RECOMMENDS THAT:

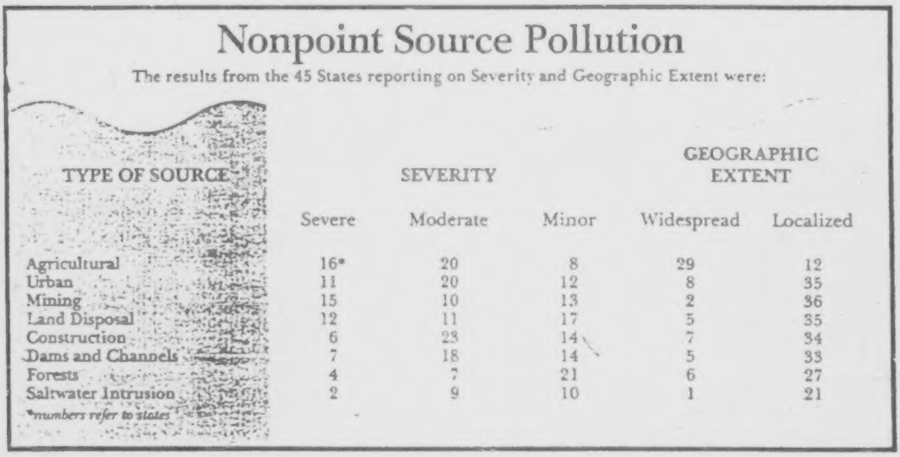
1. States have **flexibility** to develop and implement nonpoint source programs (regulatory or voluntary) based on their priority nonpoint source water quality problems.

2. A **modest Federal commitment** in the range of the Senate Bill 53 and House Bill 8 ($70 million - $150 million) annually for matching grants should be provided to assist

States in implementing their nonpoint abatement projects.

3. The national nonpoint source program should be an integral part of existing programs under Sections 106 and 303(e).

As a part of our report, America's Clean Water, we asked the States to be specific in reporting on severity and geographic extent on nonpoint sources of pollution within their State:



Nonpoint Source Pollution

The results from the 45 States reporting on Severity and Geographic Extent were:

TYPE OF SOURCE	SEVERITY			GEOGRAPHIC EXTENT	
	Severe	Moderate	Minor	Widespread	Localized
Agricultural	16*	20	8	29	12
Urban	11	20	12	8	35
Mining	15	10	13	2	36
Land Disposal	12	11	17	5	35
Construction	6	23	14	7	34
Dams and Channels	7	18	14	5	33
Forests	4	7	21	6	27
Saltwater Intrusion	2	9	10	1	21

*numbers refer to states

Based on this proven track record of success in portraying State water quality data in a succinct and effective manner, US EPA asked the ASIWPCA to enter into a cooperative agreement project to document the status of nonpoint source programs in the 50 States.

From this project, which will be completed in September of 1985, we will assess and report on:

- the priority of water quality problems caused by nonpoint sources of pollution,
- the status of nonpoint source water quality programs in the States, using valid and consistent data,
- accomplishments in nonpoint source pollution abatement in improving water quality,
- transfer of technology to the States about programs other States have found effective in evaluating impacts and improving water quality through controlling nonpoint sources of pollution, and
- recommended future directions and possible financial sources.

SUMMARY

The positions outlined in this testimony have been developed by the State Directors of the Clean Water Program.

Based on their professional expertise and their many years of experience in developing effective Clean Water programs, ASIWPCA members are convinced that the continued federal funding support will serve to enhance existing law.

We extend our appreciation to the Congress and to this Subcommittee for your diligence in providing for tederal funding for the development of effective, implementable environmental legislation. ASIWPCA and it's State members thank you for this opportunity to come before you to discuss these most important issues.

SUBCOMMITTEE RECESS

Senator LAUTENBERG. The committee now will recess at the call of the Chair. Thank you all.

[Whereupon, at 11:30 a.m. the subcommittee was recessed to reconvene at 1:30 p.m. the same day.]

(AFTERNOON SESSION, 1:30 P.M., WEDNESDAY, MAY 1, 1985)

NONDEPARTMENTAL WITNESSES

ENVIRONMENTAL PROTECTION AGENCY

STATEMENTS OF:

DR. BOYD KEENAN, PROFESSOR OF POLITICAL SCIENCE, UNIVERSITY OF ILLINOIS AT CHICAGO (UIC) ON BEHALF OF NATIONAL ASSOCIATION OF STATE UNIVERSITIES AND LAND-GRANT COLLEGES

LEONARD WEINSTEIN, PROGRAM DIRECTOR, ENVIRONMENTAL BIOLOGY, WILLIAM BOYCE THOMPSON DISTINGUISHED SCIENTIST, ADJUNCT PROFESSOR, DEPARTMENT OF NATURAL RESOURCES, CORNELL UNIVERSITY

Senator GARN. The subcommittee will come to order.

Dr. Keenan and Dr. Weinstein, if you would come up, I appreciate your staying over and apologize for the schedule this morning. I don't know whether you were told or not, but my second grandchild was born this morning and I was in much worse shape than the father.

Mr. WEINSTEIN. Congratulations.

Senator GARN. There was a little difficulty. My daughter is a diabetic and was 2 months premature, and it wasn't a normal situation. I really didn't think I could sit here and ask questions without wondering about the outcome of that. I was out wringing my hands in the father's room worse than the father.

Please go ahead.

Mr. KEENAN. My name is Boyd Keenan, Mr. Chairman, professor of political science at the University of Illinois, Chicago, and a member of the environmental committee of the 144-member National Association of State Universities and Land-Grant Colleges. I was all set to welcome you back and congratulate you on your other triumphant entries and reentries, but the news of the day, I think, overshadows even those achievements.

Senator GARN. Well, 1985 is rather a good year, space flight and three grandchildren. I had my first in January, the second one today, and my son's wife is due in 5 weeks. [Laughter.]

I have some very productive children at this point.

Mr. KEENAN. It is a banner year for you, and in a couple of minutes, I will try to celebrate a 10-year anniversary involving both you and me. I will save that for just a minute. Another member of the association is Dr. Albert Weinstein, and I will share my time with him in giving him an opportunity to present more details on EPA's research situation.

I would like to give a more general statement rather than dealing with specifics in regard to EPA funding. You have my general prepared statement. In it I have commended this committee for action taken precisely 10 years ago, and I think this project, this funded activity that came out of this very committee illustrates very well how the value of long-term basic research by independent researchers cannot really be measured. You may not recall the project I have in mind, but in 1975 your committee was concerned about short-range effects of powerplant emissions in the Ohio River basin, and you had asked to mandate to EPA in fiscal year 1976 appropriations instructing the Agency to conduct research assessing the social, environmental, and economic impacts from powerplants in the Ohio River Valley.

AIR POLLUTANTS

The EPA Administrator at that time, Russell Train, invited me to design a research plan and put together a team of about a dozen of our association universities to carry out that project. Again, you will recall that it had been mandated as a study of local impacts from powerplants.

But early into this 4-year study, our researchers decided that the most significant problems were not local, but rather the effects of long-range transport of air pollutants. Most of the literature credits this study of the Ohio River basin energy study, because it is really your study, because it was mandated from here, as really being the first comprehensive effort to bring to the attention of policymakers the problem known as acidic precipitation.

Your policy toward the Nation moved a long way toward beginning to deal with the problem of acid precipitation. Of course, that job is far from finished, but I think one purpose of that study or one achievement of that study did demonstrate one important characteristic of basic research, and that is the discovery of new knowledge that has been found in unexpected ways and has unexpected impact.

So my message today is very simple: That even in these 3 grim days of budget cutting, which we all understand the need for, I would urge the committee to maintain as much of EPA's basic research budget as possible. Your committee performed a major public service by taking the country in for an examination of acid precipitation long before the main stream of this country had realized this problem.

But neither you nor I nor the others involved in that project have too much to be pleased about, because there are some sobering aspects of that study. The mandate was limited to powerplants, and I recall that my codirector, an engineer, and myself—I am a political scientist—had suggested to the Agency, after a few months into that study, and suggested to the committee leadership back in 1976 that there were some massive chemical plants in our study region. They are in the basin of the Ohio Valley and particularly in the tributary of the Great Cannola, and some discussion was given into actually looking at the chemical plants near Institute, WV, and so on, but none of us—the researchers, the committee, or EPA—really considered that very carefully, and so of the $4.3 million that you spent on this study, we did, I think, an incredible task in looking at powerplants, but nothing was done to look at the chemical facilities in that very area.

I believe, again, the taxpayers received a fair return on their dollars for the work that the universities did, but I wonder if closer attention by all of us at that time to the integration of research activities might have made some contribution toward getting us closer to being able to handle the concerns now relating to that institute plant and the accident.

In my State, I attempt to make a statement for increase or maintenance of basic EPA appropriations in certain areas, ground water, toxic and environmental hazardous chemicals. Of course, you are understandably in a difficult position with the need to trim the budget deficit, but if we delay long-term basic research, we are truly shooting dice with the universe, it seems to me, and just as you showed the initiative in this committee in mandating the research for local short-term impacts and it was transformed into a recognition of the long-range transport of air pollutants and their role in acid precipitation, just as that is the case, I would urge you to consider continuing the funds for the basic program of OR&D with EPA within EPA with the responsibility, hopefully, that would be some identification of forms of critical pollution upon which we have a little time to mount action programs.

It has been a very poignant and a much appreciated opportunity for me to share these comments with you after this decade since I first became acquainted with this committee's work, and particularly I congratulate you once again for the banner year that you have had, sir.

Thank you very much.

Senator GARN. Thank you.

I would like to take credit for that, but I have to admit and be honest. I wasn't on the subcommittee at that time. I couldn't let the record stand. I was sitting here saying, should I take credit for all of that? My basic honesty wouldn't allow me. I think you for your comments about the committee and people who were wise at that time. I was in the Senate but not yet on the Appropriations Committee or this subcommittee. I will pass that word to those who were.

STATEMENT OF DR. WEINSTEIN

Dr. Weinstein, did you have any comments you wish to make?

Mr. WEINSTEIN. Yes, thank you.

Thank you, Mr. Chairman. You can take credit for the other parts of the banner year. I am Leonard Weinstein. I am the program director for environmental biology at Boyce Thompson Institute located at Cornell University, and I am also representing the Committee on the Environment of the National Association of State Universities and Land-Grant Colleges.

Last year at these hearings, there was landmark testimony given by two people, Louis Fernandez, the chairman of the board of Monsanto Chemical Co., representing a consortium of five major chemical industries, and Russell Peterson, who is the president of the Audubon Society and represented 10 very important environmental associations.

The two groups had gotten together and drafted documents, letters to you and letters to the committee, and presented testimony basically pleading for an increase in the R&D budget of EPA of $101 million. I think they documented this quite well in their testimony.

They pointed out that the R&D budget in 1980 had been 40 percent higher than it was proposed in 1985 in terms of constant dollars. I have in my testimony duplicated a table which shows that the R&D funds for 1975 and 1985 are exactly the same in real dollars. So we need to come to terms in terms of total research and development in the past 10 years.

But the real purpose of my being here is to discuss innovative research, long-term research which is under the direction of the Office of Exploratory Research of EPA.

In 1980, Congress explicitly recommended that EPA support long-range research at the rate of 20 percent of the OR&D appropriation. In 1985, that would have been $55 million as compared with the total amount of $19 million in 1985.

Well, I don't want to belabor the fact that the figures and the amounts available are much lower than one might have hoped, but in 1985, for the grants, competitive grants in the Environmental Protection Agency, which is a, to us, a very important aspect of the research budget, $12½ million was available.

The proposed budget for 1986 has that figure, $8.6 million, which is a significant decrease; I think around 30 percent. I have been told, and I have no reason to doubt it, that another $80,000 will be removed from that budget, leaving a total of $7.8 million.

That is for all of the environmental research in terms of long-term research in the Agency. It includes atmospheric chemistry, it includes environmental biology and all other long-term research.

I guess if adequate funds were available for these competitive, innovative research programs, the mess that we have with acidic precipitation and forest decline, toxic waste and so on would not have occurred, or at least they would have been ameliorated somewhat if scientists had been dealing with these problems for longer periods of time, I think with that and the statement that the Administrator of EPA and the Deputy Administrator for Research and Development support a higher level of funding for these research activities.

In their original budget, they did request large amounts, but unfortunately, this was slashed by OMB, and we hope that this committee could at least restore the 1986 budget to the 1985 level.

Thank you very much.

Senator GARN. Thank you, gentlemen.

I especially appreciate your willingness to come back after lunch. I appreciate your testimony very much.

Mr. KEENAN. Thank you.

[The statements follow:]

STATEMENT OF DR. BOYD KEENAN ON BEHALF OF THE NATIONAL ASSOCIATION OF STATE UNIVERSITIES AND LAND-GRANT COLLEGES

INTRODUCTION

The 144 institutional members of the National Association of State Universities and Land-Grant Colleges (NASULGC) contain many distinguished scientists engaged in significant environmental research. Hence it may appear inappropriate for a political scientist to speak on behalf of the organization's Committee on the Environment. But I shall not embarrass myself by discussing politics. Rather, as a student of government and science -- and an occasional research project director over the past quarter-century -- I shall share my belief that events since last year's FY 1985 committee hearings have crystallized as never before the need for sustained long-term environmental research.

1984 WARNING ON RESEARCH NEEDS

One year ago a rather incredible happening occurred before your committee. An unanticipated coalition of leading chemical manufactureres and national environmental organizations joined NASULGC representatives in calling your attention to newly-recognized and desperate needs for long-term, sustained basic research. Representing America's chemical industry was the chairman of Monsanto company. Spokesman for the environmental organization was Russell W. Peterson, president of the National Audubon Society.

The chemical industry, the academic community and the environmental groups might well have disagreed on what types of institutions should engage in such research, but they were in agreement that it should be funded through EPA's Office of Research and Development (ORD). Peterson, himself a former executive of Dupont and former Delaware governor, has warned for many years that risks to human health and the environment from toxic wastes and chemicals have been severely underestimated. And of course the danger signs were even being raised in the early sixties by Rachel Carson in her book, Silent Spring, and by others. The actual creation of the EPA in 1970 resulted from such early alerts. The sensitivity of Congress was laudable in those early days. Now that organizations are in place to attack these problems, a new generation of scientists simply must be adequately funded by the current Congress if we are to find solutions. Examples of problems have been more recently supplied by acid rain, ground water contamination, toxic wastes dumps, and industrial accidents. The most dramatic among the latter, of course, is the Bhopal tragedy.

PLIGHT OF EPA

EPA came under attack during hearings -- held immediately after the Bhopal accident -- as an agency that allegedly had not regulated toxic air pollution. Understandably the Bhopal tragedy has renewed pressure for tougher laws to inform workers and the general public about hazardous chemical in the workplace and elsewhere.

But EPA cannot inform the public on such matters or regulate thousands of potentially lethal chemicals until a sound information foundation has been built through basic research by independent scientists over a sustained period.

It was felt this time last year by most knowledgeable observers that the unprecedented combined voices of virtually the entire chemical industry and a majority of the most prominent environmental organizations would convince the administration of the funding crisis surrounding basic resarch. As you know, the coalition's efforts last year had little effect. Many expected the adminstration to increase in a dramatic manner the basic research budget of ORD. (In May of 1984, the coalition of the chemical industry and environmental organization and NASULGC representatives, independently, had arrived at a figure of at least $100 million in such increases.) Admission of limited knowledge (and in some cases no knowledge) of possible poisonous effects from a great many chemicals -- old and new -- came from both government and industrial sources.

Another area of very limited knowlege is environmental deposition -- especially with regard to ground water. The past months have brought expressions of disbelief in the media with regard to the nation's lack of basic research on these matters. Many across the country who had never before been concerned about environmental research indicated an expectation that EPA appropriations for basic research would be increased in the administration's FY 1986 proposals.

PROPOSALS BY ADMINISTRATION

Within ORD, the Office of Exploratory Research continues to exist as a key element of the agency's research activities. It is our understanding that agency leadership proposed significant increases which reflected needs represented in the light of the above alarming conditions. However, slashes apparently made at the level of the Office of Management and Budget will result in a 30 percent decrease in the appropriations for OER's basic programs. These follow:

	FY 1985 (In millions)	FY 1986 (Proposed)
Centers	$4.5	$3.7
Grants (competitive)	12.5	8.6
Visiting scientists	1.5	0.7
Biomonitoring	0.5	0.3
Totals	$19.0	$13.3

Reports are now circulating that the above proposal of $8.6 for competitive grants in FY 1986 will likely be cut another $800,000. Such a reduction would result in a decline in the OEF appropriation of 38 per cent from last year. Knowledgeable observers of EPA's research arena argue that support for these four basic programs is eroding -- as a result of OMB cuts in recent years -- to a point of near ineffectiveness.

Of course, we all are aware of the critical need to reduce the federal deficit. But dimensions of the present need for knowledge about pesticides and other toxic and environmentally hazardous chemicals overshadows short-term economic concerns. The EDB food and water contamination along with the Bhopal tragedy are graphic examples that illustrate we are now shooting dice with the universe in terms of potential pollution accidents. And we have seen in past months that the aftermaths of such episodes produce their own economic crises. The possibility that insurers will shun coverage of chemical and other pollution risks is increasing. While laws require such industries to buy insurance, what will happen if insurance companies won't sell it? The specter of accidents throwing critical industries into economic distress -- with rippling effects through our economy -- cannot be ignored. In view of such possibilities, there is no substitute for massive increases in basic research to provide governments, insurance companies, and other sectors with answers.

The scope of the potential economic impacts from accidents such as Bhopal is clearly an unanticipated consequence of modern technology. But unintended consequences are not always of a negative nature. Research -- both basic and applied -- can result in findings quite unlike what had been anticipated. Sometimes research funded to address one type of problem will alert us to an even greater threat -- one not even seen on the horizon when the research commenced.

UNEXPECTED RESEARCH FINDINGS

Most academic scientists have examples of projects which produce such unexpected findings. One example is relevant here because it originated with the Senate Appropriation committee precisely ten years ago. The project was initiated by this committee's mandate to EPA in the fiscal year 1976 appropriation bill, calling for an unique, multi-state, multi-disciplinary, multi-university study.

At that time, several members of that committee, concerned over local and short-range impacts from a concentration of power plants in portions of the Ohio Valley, took the initiative in directing EOA "to conduct an assessment of the potential environmental, social, and economic impacts of the proposed concentration" of such facilities in the Ohio basin.

In the spring of 1976, EPA's administrator at that time, Russell Train, asked me and an engineering colleague to develop a research design for such a study. He then invited us to organize and direct what was later described by Train's chief of research and development as "probably the largest multi-university, multi-disciplinary study ever undertaken." A dramatic irony associated with this project justifies some elaboration here and -- I believe -- makes a graphic case for sustained environmental research by universities and other scientific organizations.

Recall that I noted that the Senate committee was concerned ten years ago about short-range effects of power plants on water, land, and air. In little more than a year into the four-year project -- known technically as the Ohio River Basin Energy Study (ORBES) -- our researchers concluded that the most severe air quality impacts were long-range in nature, rather than short-range, as suspected by your committee. Researchers from almost a dozen NASULGC universities cooperating in this effort were aided by EPA's own laboratories and independent research organizations. Most important of all, perhaps, was the literature produced earlier by scientists concerned with European impacts from polluted air masses traveling from one country to another. As you will recall, long-range transport of air pollutants and the associated phenomenon of acid rain were suspected as threats by only a few American scientists in 1976.

The sum total of the ORBES project -- a creation of your committee -- was described by the former EPA research chief cited above as "bringing home to many key midwestern and national political figures the reality of long-range transport of air pollutants, especially acid precipitation." But the point here is not which group of scientists played the major role in identifying long-range transport as a critical phenomenon; many other scientists in North American and European universities were reaching the same conclusion. Two points need emphasizing -- partially as a result of the ORBES experience: (1) sustained long-term research conducted by a variety of researchers funded by ORD over a period of many years led to desperately-needed findings relating to acid precipitation; of course many other questions have not yet been answered with respect to this phenomenon; and (2) a study specifically mandated by your committee proved critically important for addressing many associated problems beyond the single problem identified in the mandate. This unique characteristic of research -- discovery of new knowledge that can assist in unexpected ways -- is best achieved through continuous suppport, not erratic start/stop methods.

NEED FOR INTEGRATION OF BASIC RESEARCH

In my opening remarks I suggested that events over recent months have crystallized the need for sustained research in environmental affairs in an unprecedented fashion. It seems that a few thrusts discussed here -- long-range transport of air pollutants, toxic chemicals, and water contamination -- encourage us to consider the need for the integration of basic research. Perhaps what we have learned most graphically over the past year is that such integration cannot be neglected. Integration is being described by a number of terms. Some prefer to call the process "multi-media" research -- an attempt to understand how air, water, and land pollution interact upon one another. Regardless of the label used to describe this kind of research, it must be undertaken if we are to make progress in any of the areas I have discussed.

I have urged you to consider increases in funding for various kinds of basic research. But if findings produced through basic research are not quickly integrated into our broad body of knowledge, the activity will have been merely an academic exercise. Thus I also urge you to probe possibilities for funding of such integrated research activity. I appreciate this opportunity to discuss these matters with you.

STATEMENT OF DR. LEONARD H. WEINSTEIN, CORNELL UNIVERSITY

At this time last year, I testified at these hearings on behalf of the Committee on Environment of the National Association of State Universities and Land Grant Colleges (NASULGC). In the Senate hearings, I was immediately preceded by a remarkable joint presentation by Dr. Louis Fernandez, Chairman of Monsanto Chemical Co. and Dr. Russell W. Peterson, President of the National Audubon Society. They represented five of our greatest chemical manufacturers and ten of our most prominent environmental associations. They pointed out that the FY 1985 research and development (R&D) budget submitted by the administration was nearly 40% lower than the 1980 budget and 15% lower than the budget in 1973 (in constant dollars). Congress was urged to add $101 million to the R&D budget, an amount necessary to effectively carry out EPA's mandate in 1985 and to provide stable, long-range support. No real changes were made in the budget as a result of their proposals or those offered by NASULGC. A summary of EPA's R&D budget is shown in Table 1. Of particular concern are the major decreases in the budget beyond 1981.

The long-range research agenda of EPA is the responsibility of the Office of Exploratory Research (OER). In 1980, Congress explicitly recommended that EPA support long-range research in a continuing identifiable program, and recommended that 20% of the funds from the Office of Research and Development (ORD) be devoted to this extramural effort. For 1985, that amount would be $55.6 million for long-range research. Present and proposed support for the four basic elements of OER are shown in Table 2.

Based upon these figures, the overall OER budget is scheduled to receive a 30% reduction over the already lamentable level of funding it received for 1985. It is difficult to believe that all the environmentally-related long-term research grants to colleges, universities, and research institutes in Environmental Health, Environmental Biology, Physics and Chemistry (Air and Water), and Environmental Engineering presently totals $12.5 million, and that this figure is destined to be reduced to $8.6 million in 1986. There is reason to believe that at least $800 thousand more will be withdrawn from the total, with $7.8 million remaining, a reduction from 1985 of 38%. The Competitive Granta program is already emasculated and with the proposed funding

Table 1. Allocation of EPA's Office of Research Development Budget 1975-1985 (millions of dollars).

Fiscal Year	Total R&D	Intramural	Extramural Contracts & Cooperative Agreements*	Extramural Grants and Centers	Grants and Centers as % of all Extramural
1975	279	68	211		
1976	248	71	177		
1977	239	76	163		
1978	296	81	215		
1979	306	96	210		
1980	335	105	210	20	8.7
1981	347	102	218	27	11.0
1982	269	105	146	19	11.6
1983	224	100	111	13	10.5
1984	245	100	137	13	8.7
1985	278	106	159	17	9.7

* Expended primarily by EPA laboratories.

Table 2. Distribution of Funds Within the Office of Exploratory Research for 1985 and 1986 (Proposed).

	FY 1985 (Millions)	FY 1986 (Proposed)	% Reduction
Centers of Excellence	4.5	3.6	18
Competitive Grants	12.5	8.6	31
Visiting Scientists	1.5	0.7	53
Biomonitoring	0.5	0.3	40
	Total 19.0	Total 13.3	Mean 30

for 1986, only a miracle would allow them to do more than maintain the status quo, adding no new research programs at a time when environmental degradation is on the increase and new ideas and approaches are needed. This kind of scientific divestment can be ill-afforded by this nation.

What is needed is a budget for long-range research that can sustain innovative research programs that can truly help EPA to understand the complex processes of the environment that fall within its mandated area. The argument that has been heard often within the Agency is that EPA's mission is to enforce environmental regulations and abate emissions of contaminants that exceed permissible levels, and to conduct only a minimal amount of research. This attitude has provided only short-term benefits and we are now reaping the rewards of this short-sighted policy through serious environmental degradation.

Let's look at some specific or perceived effects of acid rain on the environment. The destructive effects of fresh water fisheries and other biota of some lakes in the Northeast and other parts of the U.S. are unequivocal and well-documented. But the relationship between acid rain and long-term decline of forests in areas of the U.S., Canada, and Europe is poorly understood and is highly controversial. Perhaps acid rain is one cause of the forest decline problem, but it is certainly not the only one, and the long-term effects of ozone and other airborne contaminants, drought, and other environmental stresses appear to be at the root (no pun intended) of the problem. In the case of crop productivity, acid rain appears to have little effect, and in its present composition, may even be beneficial to some plants through a 'fertilizing' effect of the nitrogen in the rain. Perhaps the greatest concern with acid rain on crops is in the premature removal of applied pesticides, resulting either in a greater incidence of severity of pests or in increased costs due to more frequent application of pest control chemicals.

How can an agency like EPA fulfill its regulatory functions? That is, how can it decide what should be done and when should it be implemented? Certainly neither the choice nor schedule of remedies will be efficient without an understanding of basic and applied environmental processes ranging from atmospheric chemistry, to transport, deposition, and ecological effects.

For example, both these issues are highly charged as related to sulfur dioxide emissions, their long-distance transport, and eventual deposition in acid rain. An example of how our country regards the present importance of environmental research is the relatively small appropriation of funds to study the problem of forest decline over a 5-year period. By contrast, the West German government is spending DM180 million ($60 million) to study forest decline in their country. Even more to the point, it was estimated that 20 coal-fired power plants in Ohio, Indiana, and Illinois emit 2.4 million tons of SO_2 a year, representing 55% of the SO_2 inventory for those states. (Doctor, R.D. et al. 1985. J. Air Pollution Control Association 35:331-336).

Flue gas desulfurization costs are estimated to be about \$900 per ton of SO_2 for 80% SO_2 removal, or a retrofit cost of \$2.2 billion. This translates to a total investment in forest decline research of much less than 1% of the cost of one possible remedy for only a portion of the SO_2 emission in the eastern U.S.

Increased support for long-range basic and applied research will not only improve our understanding of the problems posed by acid rain and forest decline or crop losses due to ozone, but will also provide a reservoir of information in many scientific disciplines that can be used to accomplish EPA's mandates and to assist Congress in its guidelines of what EPA's goals and methods should be. The existence of stable, long-range research programs at our universities and research institutes will provide the future manpower needs not only for EPA, but for this nation's industries. Scientists trained in these programs will have the capacity to prevent or solve environmental problems before we blunder into some new ones that prove to be of national or international significance.

Three key areas have been identified by NASULGC as examples of how EPA can provide long-range environmental information in the university setting: (1) Competitive Grants, (2) Centers of Excellence, and (3) Cooperative Agreements. Each of these activities is presently on-going, but is badly underfunded. More scientists' time is devoted to writing proposals for research support than ever, time that could be used to seek answers to environmental problems.

The Competitive Grants Program is one of the most important EPA-university links and provides the opportunity for EPA to gain an understanding of the basic processes associated with pollution-related environmental stresses. This need is not fulfilled by the NSF, USDA, or NIH programs because pollution-directed research does not fall within their area of support and has even been specifically excluded in some cases. One main defect with the Competitive Grants Program, despite the limited resources available, is that funding is for only a duration of one or two years. That is hardly "long-range". This essentially eliminates pursuit of fundamental research objectives having relatively long time scales, the kinds of research supported by NSF and NIH. It is just such long-term basic studies which must lay the foundation for solutions to present and future environmental problems - - solutions which protect public health and are also cost-effective. Additionally, there is the difficulty of assembling and retaining a core of well-trained, experienced and interdisciplinary researchers (let alone graduate students) in the face of widely varying and often cyclical patterns in "soft money" support.

The projected budget for FY 1986 is either $7.8 or $8.6 million. In 1981, $21 million was alloted, which in 1985 dollars, would be $25 million. It appears that funding for grants is inversely related to the number and seriousness of environmental problems.

There are eight EPA-supported Centers for Excellence, the first being established in 1979. Their purpose is to provide (1) research training that emphasizes long-term environmental problems, (2) forecasting of future problems by focusing and evaluating a large body of basic scientific knowledge, and (3) providing guidelines with respect to the kinds of research needed to evaluate the extent of existing and emerging problems. The centers are devoted to different areas of research and although awarded competitively, are distributed throughout the U.S. The center with which I am most familiar is the Ecosystems Research Center at Cornell University; this center is a good example of how basic and applied sciences interact to provide imaginative and productive approaches to an understanding of environmental problems through the application of ecological sciences, and where graduate students and recent Ph.D.'s can study and train. As has generally been the case with EPA support, year-to-year uncertainty seriously disrupts the programs, especially as they relate to long-term effects and assessments.

When first established, the Centers were to receive funding from $500 thousand to $1 million annually, but it has been far short of the original goal in constant dollars. The FY 1985 funding amounts to about $540 thousand, an increase of $40 thousand since 1980. Using the GNP price deflator for the period of 1980-85 of 29.8%, the funds provided should be $700 thousand just to maintain parity. The projected 1986 budget is even more dismal...$440 thousand per Center. Maintaining core staffs for the Centers will be trying, and the disruption in programming and research, the ideas unfulfilled because of reduced and insecure funding require no further clarification.

Cooperative Agreements with universities, colleges, and research institutes constitute a third way to support extramural research. Solutions to specific problems have been addressed by funding the most knowledgeable and experienced researchers. The National Crop Loss Assessment Network (NCLAN) is a good example of this cooperation.

The goals of this program were originally established to define the relationship between yields of major crops and three important phytotoxic air pollutants and their mixtures; ozone, sulfur dioxide, and nitrogen dioxide. In the gaseous form, these pollutants are highly damaging to plant life; when dissolved in precipitation, two of these are the major components of acid rain. Results of the program are being used to provide an economic assessment for crop loss and to support the mandatory review procedure for National Ambient Air Quality Standards. Preliminary loss estimates for only a few major field crops grown in the U.S. are nearing completion and preliminary economic assessments are being prepared at the present time for effects of ozone only. The amount of data available for each crop, however, is limited and there is need to expand this data base. Research with sulfur dioxide alone and combined with ozone is being conducted at only two NCLAN sites through supplemental funding from the Electric Power Research Institute. Because of constraints in EPA funding, all secondary objectives of NCLAN, such as plant-pollutant-pest interactions, physiological modelling, etc., have been eliminated. When and if, the basic NCLAN studies are completed, rational strategies to ameliorate the problem can be formulated, whether they take the form of reduction in emissions, use of more pollutant-tolerant species and varieties of plants, or another acceptable solution based in part on benefit-cost relationships.

There are some in government who believe that industry will assume the costs for much of the extramural, long-term research programs from EPA. Indeed, certain industrial groups, such as EPRI, and the Aluminum Association, have a history of research support. Recent experience would indicate that there is a broad commitment by industry to support environmental research and the hope that long-term research funding will be assumed by industry as a whole is wishful and impractical.

The EPA Administrator and Assistant Administrator for Research and Development appreciate the cause and consequences of environmental degradation. They support the need for increased support for long-range research and have included increases for these activities in their budget for 1986. Unfortunately, that portion of the EPA R&D budget was slashed by OMB. We hope that EPA's continued understanding of the problem will lead to enlightened policies and a commitment to the support of long-term extramural research.

STATEMENT OF JOE TALLAKSON, REPRESENTING THE LUMMI INDIAN TRIBE AND ALSO SELECTED NORTHWEST INDIAN TRIBAL GOVERNMENTS

Senator GARN. Next, if I could invite Mr. Joe Tallakson on behalf of Lummi Indian Business Council and Tribal Governments. Also, you combined your work with the Indian Business Council. Please proceed.

Mr. TALLAKSON. Thank you, Mr. Chairman, and welcome back to Earth.

Senator GARN. My body is back, but my mind isn't.

Mr. TALLAKSON. Yes, sir.

I appreciate the opportunity to provide testimony to this Appropriations subcommittee and I will summarize my remarks and my statements have been prepared for the record.

I represent the Lummi, Quileute, Quinault, Squaxin Island, and Suquamish Indian Tribes of the Pacific Northwest. These tribal governments came before this committee last year as well as the House subcommittee and requested consideration for appropriations for American Indian tribes in the Environmental Protection Agency. Although no appropriations were given by either subcommittee or proposed, the House Appropriations subcommittee proposed language and and had language which requested an American Indian policy in the Environmental Protection Agency be established.

In November of last year, the EPA did establish an American Indian policy. EPA took $500,000 in agency discretionary funds and targeted them toward American Indian issues. In this, the administration requested no appropriation for Indian tribes in the fiscal year 1986 appropriations. There are 274 federally recognized Indian tribes in the Nation, controlling approximately 30 million acres, or 3 percent of the Nation's land base.

These tribes do not get assistance through the State agencies due to the historical relationship of tribes with the Federal Government, the treaty-trust relationship and jurisdictional conflicts with the States themselves.

We would recommend that a modest appropriation, either as a possible add-on or as earmarked, targeted from existing resources, be considered for establishing Indian staff in the EPA central and regional offices, providing technical assistance for tribes, establishing environmental programs, conducting a comprehensive study of environmental control and protection needs on Indian reservations, and implementing pilot or demonstration projects managed by Indian tribes within the purview of this established American Indian policy.

American Indian people, by their cultures, philosophies and religions, have been the virtual environmental conscience for this nation over the last several hundred years, and we do feel that Indian tribes should be given at least as much consideration as the rest of the Nation in terms of controlling the environment on their lands.

The five tribes that I represent, in my State, have outlined what they would do in terms of protecting and enhancing their natural fisheries or their land and natural resources given an EPA appropriation targeted for American Indian tribes.

LUMMI INDIAN BUSINESS COUNCIL

My second statement is on behalf of the Lummi Indian Business Council. The Lummi Indian Business Council is located 100 miles north of Seattle on the coast and has a natural harbor area and is working very hard to become economically self-sufficient. The tribe is particularly concerned that the administration has targeted Indian housing for complete elimination in this year and that the Indian housing project in HUD has been now melded into public and Indian housing, and that general regulations for public housing have been imposed on the Indian tribes and Indian housing authorities, which are inappropriate for the geographically isolated locations and the living conditions and the costs for the housing, themselves.

We request this committee restore at least to fiscal year 1985 levels the appropriations for Indian housing. There has been a cut in the Bureau of Indian Affairs and the Housing Improvement Program designating those funds only for rennovation of houses, and there has also been a request to cut completely out the Indian Health Service Sanitation Program. We would request that these programs be restored to fiscal year 1985 levels and that Indian tribes, through approval with the regional offices, be given some authority in terms of developing rent or purchase payments which are comparable with the worth of the houses in the given geographic areas. At this time, a mandatory 30 percent of income payment is required, which has no ceiling to it, and those families who are struggling their way out of poverty are paying much higher rates for the houses of comparable value in the area.

I appreciate being able to make a statement before this committee. Thank you very much.

Senator GARN. Thank you, sir, and your entire statements, both statements, will be included in the record in full.

[The statements follow:]

Statement of Joe Tallakson

REPRESENTING SELECTED NORTHWEST INDIAN TRIBAL GOVERNMENTS

I appreciate the opportunity to provide testimony to this appropriations committee on behalf of the Lummi, Quileute, Quinault, Squaxin Island, and Suquamish Indian Tribes located in Western Washington State. These Tribal governments requested EPA appropriations considerations in FY85 from this Committee last year. Although no appropriations were designated for Indian Tribes, the House Appropriations Subcommittee on HUD-Independent Agencies included report language directing the EPA to establish an American Indian Policy. An American Indian Policy was finalized in November, 1984 and $500,000 in agency discretionary monies were targeted for American Indian issues. The administration requested no appropriations for Indian Tribal governments in the $4.2 billion FY86 appropriations request for EPA.

The 274 Federally-recognized Indian Tribes control approximately 30 million acres of land or three percent of this nation's land base. By EPA's own estimation, this land, collectively, would constitute "a geographic area that is larger than the combined area of the States of Maryland, New Jersey, Connecticut, Massachusetts, Vermont, New Hampshire, and Maine." American Indian people, representing the environmental conscience of the nation by their cultures, religions, and philosophies, have been virtually ignored by the EPA regarding assistance and resources to rehabilitate and protect their land and natural resources.

Due to the sovereign status of Tribal governments and their treaty trust relationships with the United States, the EPA must deal directly with Indian Tribes and their environmental concerns. Although State governments have well established environmental programs, State governments are a most inappropriate mechanism for addressing Tribal needs. States have shown neither the inclination nor willingness to assist Tribes. Due to historical jurisdictional conflicts with States, Tribal governments deal directly through the Federal system. Unfortunately, the new Federalism block grants to States favored by this administration consistently ignores Indian tribes.

We request that this Committee recommend appropriations targeted for American Indian Tribes nationwide in the FY86 EPA appropriations to begin implementing the established Indian policy. Given that Tribal reservation land constitutes three percent of the nation's acreage, it is reasonable to suggest that three percent of the EPA program accounts be earmarked for Tribal programs either as an appropriation add-on or targeted from existing resources. At the least, Indian Tribal government appropriations for FY86 should be provided to:

- Establish Indian Staff in the EPA Central and Regional Offices
- Provide technical assistance for Tribes establishing environmental programs
- Conduct a comprehensive study of environmental control and protection needs on Indian Reservations
- Implement pilot or demonstration projects managed by Indian Tribes

Given an EPA appropriation for pilot or demonstration initiatives in FY86, the Pacific Northwest Tribal governments I represent would seek EPA resources to rehabilitate or protect spawning habitats for their anadramous salmon fisheries and monitor developments impacting their fisheries resources. Specifically, these Tribal governments request appropriations to implement their own environmental initiatives briefly described as follows:

LUMMI INIDIAN TRIBE

The Lummi Indian Tribe, located on the Pacific Coast approximately 100 miles North of Seattle, currently operates the largest American Indian fishing fleet in North America. The reservation borders major commercial ocean shipping lanes creating potential ecological damage due to accidents or spillage.

The watershed areas are threatened by commercial, residential, and recreational development.

The Lummi Tribal fisheries sustained significant loss of salmon harvest potential in the U.S.-Canada Pacific Salmon Treaty to ensure sustained yields to the Puget Sound, Coastal, and Columbia River and accommodate equitable U.S.-Canada distributions. In the next four years, the Lummi Tribal fishery will lose rights to 3.32 million Fraser River Sockeye and 2 million Pink Salmon valued at over $7 million dollars. Intensive hatchery enhancement of Chum, Chinook, and Coho salmon species outside Canadian interception jurisdiction and protection of natural habitat areas will be extremely important replacement initiatives to sustain the economic vitality of the Lummi commercial fisheries.

The Lummi Fisheries Department currently operates an environmental review in conjunction with their fisheries enhancement efforts. Four fisheries biologists, a paralegal advisor, and technical support staff will be employed to study the Nooksack Basin watershed for fine sediment levels harmful to spawning gravel beds; review Federal, State, and local development permits; monitor forest logging practices in the watershed areas; and, serve as a Tribal linkage to city/county zoning decisions and agencies responsible for long-range planning.

Due to development activities in the area, the Tribe is particularly concerned with stream stability as studies have indicated that channel shifting and scouring are problems on many spawning streams. Further studies are planned to determine mortality on eggs within gravel beds due to shifting and fine sediment. Rearing habitat studies to establish baselines for measuring future change will be implemented including temperature levels and low flow conditions. Salmon survey data is needed for many streams in the Nooksack Basin and research will be necessary to revitalize the depleted Spring chinook stock. The Lummi Fisheries Department also plans saltwater studies on herring populations to aid in harvest management as well as marine quality monitoring in Bellingham Bay with emphasis on mercury contamination of crab and bottom fish tissue. Project Cost: $510,000

QUILEUTE INDIAN TRIBE

The Quileute Indian Tribe, located at the mouth of the Quileute River on the Pacific Coast of the Olympic Peninsula, manages a natural river harbor for commercial ocean fisheries. With major reliance on a terminal net fishery, the Tribe is particularly concerned with logging and road building practices within the watershed.

A fisheries biologist will be employed to review and advise Tribal leadership on Federal/State and local permit applications, develop a working relationship with logging companies operating within the watershed area, and coordinate dialogue with Federal, State, and private organizations. Three existing U.S.G.S. river gaging stations, closed by budget cuts, would be reactivited and managed by U.S.G.S. on a cost sharing basis. Water quality monitoring would be undertaken to maintain baseline data with field analysis immediately available in case of emergency. An instream flow study utilizing State-of-the Art technology will be initiated. And, due to the increasing number of small hydro-electric proposals in the area, minimum flow standards will be established for the river system in conjunction with the instream flow study to protect the fish habitat. Project Cost: $75,000

QUINAULT INDIAN NATION

The Quinault Indian Tribe, situated on the Olympic Peninsula bordering the Pacific Ocean, is responsible for four river systems on the reservation and several other rivers and watersheds in their usual and accustomed fishing areas. Extensive uncontrolled logging in this rain forest area and mismanaged logging over the past four decades on the reservation have created log jams and exposed habitat areas extremely damaging to native salmon stock spawning areas. The clearcutting practice on reservation has aggravated natural mildly acidic stream conditions creating a severe fish enhancement problem. The Grays Harbor Area in the Quinault usual and accustomed watershed is exposed to residential/commercial development, logging, coal mining, and industrialization.

The Quinault Tribe plans to employ a hydrologist, fish biologist, forester and support staff to investigate and identify water quality problems in the habitat area; enforce the Tribes recently enacted Forest Practices Act; study the effects of slash burning on water quality; and, determine the potential utilization of limestone or oyster shells for water acidity abatement. Two contracts will be let to clear logging residue on the Raft River and study the effects of herbicides, including Round-up, Garlon, and 24D on aquatic and terrestial wildlife in the unique Quinault rain forest environment. Project Cost: $350,000

SQUAXIN ISLAND TRIBE

The Squaxin Island Tribe owns an island in South Puget Sound near Olympia, Washington, and reside on the adjacent mainland. Commercial development on the mainland and in the waterways near the island and small tributaries present increasing potential degradation to water quality impacting commercial oyster production and harvest as well as the treaty watershed areas. The Washington State Department of Social and Health Services, in fact, has decertified selected beaches due to bacteria from human waste generated from boaters utilizing an adjacent State Park with inadequate restroom facilities.

The Squaxin Island Indian Tribe will employ an environmental coordinator and technical support staff to up-date and establish resource management plans; plan, supervise, and conduct baseline environmental data collection; implement a monitoring plan to measure resource quality; review proposed Federal, State, County, and local government development plans as well as pertinent permit applications and Environmental Impact Statements; and develop guidelines and negotiate improvements for the adjacent State Park. Project Cost: $100,000

SUQUAMISH TRIBE

The Suquamish Tribe, located on the East side of the Kitsap Peninsula in Puget Sound, has the largest usual and accustomed fishing area of any Tribe in Washington State. Although the Tribe has made extensive gains in enhancement, there is a growing concern that these gains will be offset in the future by preventable environmental degradation.

An environmental biologist will be employed to analyze pertinent watersheds and habitat, monitor stream flow and water quality for area streams as well as compiling data on spawning and rearing habitat within each watershed in the Tribal exclusive fishing area. The biologist will review planned development/construction projects in the watershed; determine the impact on the habitat; and advise the Tribal leadership. This staffperson would also be responsible for coordinating escapement data on salmon and steelhead stocks returning to area streams. Project Cost: $50,000

CONCLUSION

We advise that incremental assistance be provided to all Tribes in the ensuing years to assist in establishing effective environmental programs. Immediate assistance, as outlined in the proposed projects, should be made available to American Indian Tribes beginning in FY86. At the very least, Congress should instruct the EPA to allocate resources to ensure that reservation lands are given comparable environmental protection as the rest of the nation.

REPRESENTING THE LUMMI INDIAN TRIBE

I appreciate the opportunity to share the views of the Lummi Indian Tribe before this appropriations subcommittee regarding the FY85 appropriations and American Indian housing.

The Lummi Indian Tribe, geographically located on the Northwest Coast of Washington State, currently operates the largest American Indian fishing fleet in North America. A majority of the 2500 enrolled Lummi Tribal members depend on the fishing industry, either as independent fishermen or as employees in commerical Tribal ventures, for their livelihood. Although the reservation land has minimal natural resource value, the reservation borders prime commercial fishing and recreational boating area as well as traditional shipping lanes. The future self-sufficiency of the Lummi Tribe depends on the management, enhancement, and harvest of the fisheries resource, the carefully planned utilization of a natural harbor area, and the attraction of private enterprise to the reservation.

Economic development for any geographic area depends on available housing as a critical support element to ensure an adequate human resource pool. The Lummi Indian Tribe with half its population under the age of eighteen years will obviously need adequate housing in future years for its membership to build a diversified economic base. The Lummi Indian Housing Authority currently manages 175 low income rental/purchase units on reservation; oversees the construction of 35 to 40 new homes in progress; and, attempts to find adequate shelter for an established waiting list of 209 unscreened Tribal applicants. A new sewer system throughout the reservation is designed to accomodate new housing as well as industrial development requirements. The home is an essential support for the Tribal family. Tribal families are the critical resource for achieving Tribal goals of economic self-sufficiency.

The Lummi Indian Tribe was heartened by the White House Indian Policy of January, 1983 which promoted "government to government relations" and established a Presidential Commission on Indian Reservation Economies. The Commission recommendations outlined numerous strategies to assist Tribes in their economic development initiatives. With puzzlement and dismay, we observe that this same administration again proposes zero appropriations for Indian housing; supports the elimination of Community Development Block Grants; administratively shuffles current Indian housing into an office of Public and Indian housing; and, superimposes most inappropriate regulations on Indian Housing Authorities with minimal opportunity for Tribal comment or recommendations.

The need for Indian housing construction is obvious. Indian housing appropriations and actual construction units have declined steadily since fiscal year 1981. The Indian Health Services Sanitation Facilities Program, essential to any housing program, has likewise been proposed for elimination. And, the administration has proposed further reduction in the Bureau of Indian Affairs Housing Improvement Program (HIP), eliminating new construction opportunities allowing HIP funds to be utilized only for rehabilitation. Obviously, we recommend that HUD, IHS, and BIA housing and economic development programs be restored. The existing conditions across Indian Country do not warrant this mean-spirited administration approach.

The Lummi Tribe also objects to the subversion of HUD Indian Housing and the unique nature of the program into the general Public housing HUD administrative structure. The administration does not want a HUD Indian housing program. By further diminishing its status, the program priority and selected attention it deserves can be further diluted.

HUD regulations for American Indian Housing authorities arbitrarily imposed prohibitive rental fees and create local management problems for housing authorities. For example, HUD regulations requiring 30 percent of income housing rental/purchase payments should be reduced to 25 percent or local housing authorities should set the rate according to comparative area rates. HUD promulgated rules and regulations for Indian Housing Authorities in 1981 imposing a mandatory monthly low income housing rental/purchase payment of 30 percent of income. There is no ceiling on these payments creating unproportionately high rental fees in relation to the local economy and housing value. The Lummi Tribal housing authority had a HUD-approved rental/ purchase payment of $150/month maximum which is comparable to low cost housing in the Northwest Washington State geographic area prior to these new regulations. Families with extremely low incomes must pay one third of their resources; families emerging into higher income brackets must pay unreasonable rates for houses of the same value.

The Lummi Tribe endorses fully the recommendations and arguments presented by other knowledgeable Indian Housing Authorities to delete the Indian Housing from the new income limits, 95-5 rule requirements. This ruling is unmanageable in Indian housing situations.

Current HUD regulations allow for a low income housing rental/purchase rent credit for those families with extremely low income. This creates the unrealistic situation for the Lummi Tribal Housing Authority of actually making payments to families living in rental or purchase units depleting limited administrative resources. All individuals in low income housing should be required to make some payment to ensure administration resources. Rental credit should be allowed for rental units and disallowed for purchase units.

The HUD low income housing rules and regulations impose strict guidance on local housing authorities creating unrealistic and unequitable rent requirements. This restrictive requirement is a most disruptive and controversial imposition on local housing authority management. Local Indian housing authorities should be granted the flexibility to establish rent structures in relation to local economic standards and living conditions. For improved Federal management oversight and understanding of unique Tribal conditions, Indian housing programs should be transferred as identifiable program units to the regional offices.

In conclusion, the Lummi Tribe requests an equitable consideration be given Indian Tribes in both Indian housing program appropriations and management in FY86.

STATEMENT OF HON. CHARLES McC. MATHIAS, JR., U.S. SENATOR FROM MARYLAND

Senator GARN. Senator Mathias, if you would like to come forward, I would be happy to hear from you at this time. Your timing was impeccable.

Senator MATHIAS. My timing, Mr. Chairman, is perhaps a little too good, because I seem to have arrived here ahead of the script, but if I could ask unanimous——

[Laughter.]

Senator MATHIAS [continuing]. If I could ask unanimous consent that my statement be included in the record.

Senator GARN. I don't object, and I don't see any other Senators here, so by unanimous consent, it will be included in the record.

Senator MATHIAS. I appreciate that, Mr. Chairman. I appreciate your willingness to hear me very briefly. The issue of the Veterans Hospital in Baltimore is not a new one by any matter of means.

Senator GARN. I am familiar with it.

Senator MATHIAS. For that reason, I won't belabor the issue too long except to say that we really believe that it is No. 1 in necessity and No. 2 in economy to go forward with the plans which have been under consideration for so long. And that beyond that, it will improve the quality of medicine available to the veterans population because it will provide an association with the University of Maryland School of Medicine and with the research facilities at the University of Maryland.

So you compound the benefits of associating the Veterans' Hospital with a teaching hospital. I don't have to tell the chairman that we have a large veteran's population that has been moving demographically through the years, through the decades, and more and more veterans of the World War II period are reaching the age of 65 and higher. Those are the years in which the requirement for medical services increases very rapidly.

That is the situation which is particularly acute in the area that would be served by the Baltimore Veterans Hospital. All of that is laid out in my statement.

So I believe that the alternatives will ultimately be more expensive and less satisfactory. I urge the committee to approve the funding of this project.

Senator GARN. I think the Senator knows, as we have talked about before, the struggle I have had for 3 or 4 years to get the Veterans Administration to come up with a priority list that did not place parking lots in certain States ahead of health care facilities.

I am also in a similar situation in not needing new hospitals, but recognizing the value of what you say as far as a teaching hospital associated with a care hospital, the same situation exists in Salt Lake City at the University of Utah Medical School and Hospital in conjunction with the Veterans Administration hospital, which are physically located very close to each other.

So we certainly will include your full statement in the record and appreciate your willingness to testify today.

Senator MATHIAS. I appreciate the opportunity. Thank you very much.

[The statement follows:]

STATEMENT OF SENATOR CHARLES McC. MATHIAS, JR.

Mr. Chairman and my colleagues on the Committee:

I am here today to commiserate with you over the not-yet-constructed Baltimore Veterans Administration Replacement Hospital. Although the Maryland Congressional Delegation received the unanimous and bipartisan support of both the Senate and House Committees on Veterans' Affairs as recently as January of this year, there is still some doubt that this authorized facility will be built. I will be brief even though the history of this project is anything but.

As you know, the VA is currently evaluating the Baltimore area veterans' health care construction requirements for the 1990s. This report was requested by the Senate and House Veterans' Committees last year and was due April 1,1985. I am confident that you have been following the development of this report very closely. The results will take the form of a recommendation from the VA to be considered by the appropriate committees. It is my hope that the report will determine an appropriate size and scope for the project and validate the need for the construction of a replacement hospital. If the VA were given the go ahead to construct a replacement hospital in Baltimore tomorrow, I am told that the existing drawings and design could be updated in four to six months and actual construction could begin within the year.

The arguments for the construction of the new replacement hospital are still compelling; a growing veterans population, which now numbers nearly 630,000, with nearly one quarter of that number living in Baltimore City; lack of adequate construction improvements at VA facilities since 1972; lack of modern technology; over 70% of the veterans hospitalized at the Loch Raven VA Hospital have no health insurance and no hope outside the Veterans' system.

These are the same arguments used by the VA in proposing the construction of a replacement hospital in Baltimore City nearly ten years ago.

Let me call to your attention a survey made by the American Legion and sent to me February 25, 1985. It is a field report relative to the Veterans Administration Medical Center in Baltimore, better known as Loch Raven. I quote . . ."The current facility at

Loch Raven is totally inadequate for the provision of quality patient care. This is no revelation. Virtually every visitor who has seen this station, and every evaluation and study conducted regarding the conditions at the station have acknowledged that something needs to be done. The hospital was not built to provide the kinds of service now mandated by its mission and by state-of-the-art medicine. The building is old and outmoded, and it is unbelievably congested . . . This report can only support and reiterate . . . the fact that the replacement hospital is needed, and needed badly."

Let me assure you that I am mindful of the fiscal constraints we face regarding new construction. But every day we delay in making a full and final decision on the medical needs of the veterans community in Maryland perpetuates inadequate health care and results in a higher price tag for the project. Last year, the Senate Veterans' Affairs Committee approved an authorization resolution recommending construction of the Baltimore Veterans Administration Medical Center and the Philadelphia VAMC. Under the Committee action, the total amount of authorization for hospitals nationwide remained at the Administration's requested level. The Committee noted, "no clear priority determination nor planning criteria and goals were discernible which would explain the inclusion of the other five projects and the exclusion of Philadelphia and Baltimore projects."

Although this construction resolution was not embraced by the House and Senate Appropriations Committees, $2 million was appropriated directing the VA to consider construction of a replacement hospital for the Loch Raven facility as part of its Baltimore area planning. I believe that some solution can be reached to accommodate the medical needs of the veterans in the State of Maryland. The Maryland Congressional Delegation stands ready to offer any assistance necessary, having recently endorsed the recommendation made by the Chairmen and Ranking Minority Members of the Senate and House Committees on Veterans' Affairs in a letter to Mr. Harry Walters dated March 6, 1985. Mr. Chairman, I ask that the text of that letter be printed in the record of today's proceedings. I am certain that if we put our heads and backs into it and examine FY'85 budget authorities vs. FY'85 budget outlays a just and acceptable solution will be found.

LETTER FROM SENATOR MATHIAS

March 6, 1985

The Honorable Harry N. Walters
Administrator
Veterans Administration
810 Vermont Avenue, N.W.
Washington, D.C. 20420

Dear Mr. Walters:

We are writing to endorse the recommendation made by the Chairmen and Ranking Minority Members of the Senate and House Committees on Veterans' Affairs in a letter to you dated January 2, 1985, regarding building a VA Replacement Hospital in Baltimore.

As you consider this important request, we hope that you will bear in mind that Maryland has suffered from a lack of construction improvements since 1972. The construction of a replacement hospital is urgently needed if we are to keep faith with our veterans and if we are to meet their changing medical needs.

With best wishes,

Sincerely,

Paul Sarbanes
Paul S. Sarbanes, U.S.S.

Charles McC. Mathias, Jr., U.S.S.

Marjorie S. Holt, M.C.

Parren J. Mitchell
Parren J. Mitchell, M.C.

Steny Hoyer, M.C.

Barbara A. Mikulski
Barbara A. Mikulski, M.C.

Beverly Byron
Beverly B. Byron, M.C.

Roy Dyson
Roy Dyson, M.C.

Helen Delich Bentley
Helen D. Bentley, M.C.

Michael D. Barnes
Michael D. Barnes, M.C.

ENVIRONMENTAL PROTECTION AGENCY

STATEMENT OF RICHARD STAMETS, CHIEF, OIL CONSERVATION DIVISION, HEALTH AND ENVIRONMENTAL DEPARTMENT OF NEW MEXICO, ON BEHALF OF UNDERGROUND INJECTION PRACTICES COUNCIL

ACCOMPANIED BY:

LESLIE BELL, FORMER DIRECTOR, FLORIDA UIC PROGRAM, UNDERGROUND INJECTION CONTROL

RON FIRK, ON BEHALF OF DIANNE NEALSON, DIRECTOR, UTAH DIVISION OF OIL AND MINING

Senator GARN. Next, if we could have Mr. Richard Stamets, chief, Oil Conservation Division, Health and Environmental Department of New Mexico, on behalf of Undeiground Injection Practices Council.

Mr. STAMETS. Thank you, Mr. Chairman.

I am Dick Stamets, vice president of the Underground Injection Practices Council, Director of the Oil Conservation Division in New Mexico. I have with me today Leslie Bell, who is the former director of the Florida UIC Program, Underground Injection Control, and also Ron Firk, who is here today for Dianne Nealson, who is the director of the Utah Division of Oil and Mining.

We certainly appreciate this opportunity. As you can see, I just finished my statement today, sir, after appropriate conversations with staffs of the affected offices and with my counterparts here.

I will be supplying copies of this to you, sir, and to the subcommittee upon my return to Santa Fe.

We didn't come here to tell you this morning that this is the most vital issue which is going to be facing Congress this year. The sky is not going to fall.

However, this is an issue of some substantial importance, and if we don't handle it correctly, large cracks will develop in the sky.

Speaking of the sky, sir, we in New Mexico, as your sister State, we are not unaware of your accomplishments. I could not think of anything too cute or too good to say. I decided the best thing to do was to let your accomplishments speak for themselves.

Senator GARN. You mean you didn't call Doonesberry? [Laughter.]

Mr. STAMETS. Occasionally, I don't read Doonesberry. If he occasionally starts attacking somebody I like, I turn him off for a week.

We have two basic issues we would like to talk about today. One involves the continued use of permitting injection wells, and the other involves protecting ground water from the potentially continued use of the injection wells. The continued use of injection wells is important. To illustrate this, in New Mexico, in 1984, we produced about 80 million barrels of oil. This is very valuable to us as a tax base and also as jobs. There is a considerable amount of oil production in Utah. I am certain you understand what that means to a State.

About a third of our oil production would not have been had this year if it had not been for secondary recovery projects which use injection wells. Additionally, about half the other production would have to be shut down if we didn't have produced water disposal wells where we could dispose of the saline water which is produced with much oil and gas.

If you put that on the surface, if there is any fresh water there, you surely are going to contaminate it. The disposal well is a much better place for it. Nationally, the use of injection wells for enhanced recovery appears to be the only way that we are going to assure ourselves of continued significant U.S. oil production in the next 20 to 40 years.

Additionally, injection wells are used for solution mining, disposal of industrial, municipal and hazardous waste, and probably will continue to be.

Now, the improper permitting and operation of injection wells can result in the contamination of ground water. In New Mexico, 90 percent of our citizens drink water which is ground water, so we don't want it screwed up.

The oil field injection in New Mexico last year probably was about 21 trillion gallons. It is not unreasonable to assume that one gallon of oil waste water can contaminate 100 gallons of ground water. So the potential there, just from oil and gas, is significant.

Of course, simply ignoring hazardous waste disposal wells could result in problems for the Nation at least equal to the Love Canal.

Utilizing State and Federal resources, we protect ground water by proper permitting, reporting, inspection, and testing of injection wells. We are talking preventive medicine here, stopping the problem before it starts.

The Environmental Protection Agency is not providing sufficient funds to fully establish and properly run these programs to meet the authorized 75 percent/25 percent Federal-State program cost split. This lack of sufficient funding increases the threat to ground water in at least three ways. One is our inability to hire the technical staff for the permitting process to see that the well is properly located, constructed, injection pressured, and this type of thing. Also, it hurts us in our ability to hire and keep enough inspectors to test wells and oversee the repairs of defective wells. If the States or the Federal Government does not have a man in the field actually checking these wells, you don't ever really know what is going on in a program.

Third is the inability to hire expert hydrologists and environmental scientists who would be necessary to design and carry out any required monitoring program, especially if there was some contamination.

Now, the numbers and uses of injection wells vary widely from State to State. Even though this is a national program, each State has been able to tailor the program to its own needs.

I am certain our next two speakers will demonstrate this diversity of program and program needs.

Leslie?

STATEMENT OF MS. BELL

Ms. BELL. The situation in Florida is quite different. We have been injecting sewage effluents since 1959 and industrial waste since 1963. But the importance of that injection is that we have been going beneath underground sources of drinking water, several thousand feet beneath any potential drinking water. Right now, there are 67 municipal wells injecting 560 million gallons a day of effluents and 60 industrial wells injecting 25 million gallons a day. In the last 2 years, these numbers have doubled, while the staffing and funding to permit and inspect and monitor these sites have not doubled.

I can show you the significance of the inspection models by showing you the location of them. They are concentrated along the coast, which is where, of course, everybody that moves to Florida wants to live. But all of these people rely on shallow aquifers for their drinking water exclusively.

Senator GARN. The last time I was in Florida, I left it rather rapidly. [Laughter.]

Sorry, I couldn't resist. [Laughter.]

Ms. BELL. So by having injection wells that can implace the wells beneath the shallow drinking water, we are offering protection to that drinking water supply. Also the other options may be totally economically unfeasible or may be forbidden by the State agency. For example, it would take 128 acres to spray irrigate and 128 acres along the coast would be exorbitantly expensive.

The industrial wells enable, without industrial wells, industries may have to relocate because their waste can't meet the surface water treatment standards that exist in Florida. They are quite strict.

Class 5 wells, which are those types of wells that inject nonhazardous wastes into drinking water supplies, thece are 10,000 of those in Florida, and in less than a year EPA is asking us to assess the ground water contamination potential. Currently, we do not have the staff available for this effort.

For the past three fiscal years, our funding has been adequate, but we are faced with the doubling of the deep injection wells and this massive effort to inspect the shallow wells going directly into the drinking water supply. I believe injection wells can be a safe and economic means of waste water disposal in the State of Florida, if we continue to have a strong program.

Thank you very much.

STATEMENT OF RONALD FIRK

Mr. FIRK. Mr. Chairman, my name is Ronald J. Firk, associate director to the division of oil and gas mining. I appreciate the opportunity to appear before the subcommittee to present remarks pertaining to the Utah Underground Injection Control Program and class 2 injection wells and the protection of the ground water quality in Utah.

It has only been within recent years that Congress, State legislators, and regulators have turned their attention from the protection of visible environment of the land, air and surface water and begun to concentrate their efforts on the protection of ground water. Two significant factors have contributed to the increased concern for the protection of ground water.

First, increased contamination of ground water also encourages ground and surface monitoring programs, which have improved public awareness of ground water degradation and its impact on drinking water supplies.

Second, there is an increasing awareness of ground water as a precious resource to be protected and managed rather than ignored. The trend, then, is unmistakably toward the development and regulatory option for the protection of ground water quality. Utah is particularly dependent upon ground water, since 59 percent of the municipal water needs are supplied by ground water. Protection of ground water in Utah relates to the underground injection of water for disposal or enhanced for hydrocarbon purposes for the Utah Division of Oil, Gas and mining.

EPA granted the State of Utah the primary enforcement authority for class 2 underground injection wells in October 1982.

The UIC Program in Utah operates in the areas of administration, permitting, inspection and quality assurance, enforcement, data management, and public information training and technical assistance.

For the period fiscal years 1982 through 1985, the State has received $355,965 in Federal funds for the program, supplemented by a $138,655 State expenditure.

This total Federal-State expenditure includes moneys allocated for special water studies, which are presently in progress in the Udenda and Paradox basin in Utah. These studies are determined after monitoring the depth of moderately saline water or ground water considered potentially usable and are being conducted in cooperation with the USGS Water Resource Division.

Utah presently has 554 permitted class 2 injection wells, including 496 enhanced recovery injection wells, 42 salt water disposal wells, and 16 gas injection wells. With an annual gas production of 36 million barrels accompanied by approximately 114 million barrels that produce water, injection and disposal of this reduced water in a safe manner which protects and precludes the contamination of the natural resource is of the utmost importance.

Of the total produced water, 66.3 percent is handled by injection, with 21.9 percent used for irrigation purposes and 21.9 percent placed in surface evaporation pits.

It appears the use of surface disposal operation procedures in Utah will be short-lived and that a total injection program will need to be effected in the very near future. This will involve the use of a considerable number of additional injection wells and necessitate the need for increased ground water protection programs.

In view of the increased emphasis placed on ground water quality, the division will continue its efforts to manage a suitable ground water protection program in full cooperation with the EPA and industry.

Mr. Chairman, as a constituent from Utah, I would like to congratulate you on your political efforts and also on your space adventures. I guess today it is appropriate to include your strengthening of your posterity.

Senator GARN. Thank you very much. I am happy to have all three of you here. We certainly have not had a problem with ground water in the last 3 or 4 years in this quantity in Utah. What I am talking about is we have had far and far more than we would like to have. The Great Salt Lake is still at the levels it has not been since the 1860's. In fact, our former Governor Scott Matheson summed it up better than anybody else in the spring of 1983 when we had the really severe flood by saying, "This is a hell of a way to run a desert." [Laughter.]

That has summed up our situation for the last 3 years. Sometimes, the best speeches of all are the short ones. In fact, when we got back from space, one of my crew members, Dave Griggs, when we were asked to each get up and speak for just a couple of minutes, he gave a two word speech and he got a standing ovation from the rest of his crew. It was simply, "Gravity sucks." [Laughter.]

Anyway, thank you very much for coming. Your full statements will be included in the record.

Mr. STAMETS. Thank you, Mr. Chairman.

[The statement follows:]

STATEMENT OF MICHEL J. PAQUE, EXECUTIVE DIRECTOR, UNDERGROUND INJECTION PRACTICES COUNCIL

There are 215,575 known active Class I,II,III and V injection wells operating in the United States today. The volumes of liquid which they inject amount conservatively to over 2 billion gallons per day. This is not an insignificant amount and nothing but a rigorous program of regulation of these wells and their injection processes is sufficient.

As an example of how much fluid 2 billion gallons is, try to visualize a high wall around the District of Columbia which would turn the whole district into a giant holding tank. The District has a surface area of approximately 67 square miles or 42,880 acres. Let's see how fast this tank would fill up using the 2 billion gallons per day national figure.

There are about 6138 acre feet of fluid in 2 billion gallons. In one year this accumulates to 2,240,285 acre feet. If you divide this number by the number of acres in the District of Columbia, you find that the depth of the fluid in the D.C. holding tank would be in excess of 52 feet--in just one year. That would cover up a lot of things that go on in Washington. This example is used merely to illustrate the magnitude of fluids which are being injected in the United States. The volumes in the future will most surely increase.

The largest percentage of liquid being injected is salt water brought to the surface in connection with the production of oil and gas. Large quantities of industrial, nonhazardous and hazardous liquids are also being injected. If the current methods of disposing of oil and chemical liquids were to be taken away, it would severely impact many industries.

Underground injection is now and will remain into at least the next century, a key method of dealing with Class I industrial and hazardous waste, Class II oil production brines, Class III solution mining and Class V or "other" produced fluids. It will remain so at least until the so called high-tech methodologies are developed and become cost effective which will not be soon, given the huge quantities (billions of gallons) of fluids to be disposed of.

There are dangers in any underground injection program, however. The practice of deep well injection does create the potential for the pollution of ground water. It is the underground injection control regulatory program's responsibility to see that this is not done. This is one reason the Congress passed the Safe Drinking Water Act to begin with--to provide a program of regulation which would minimize the risk to ground water posed by (among others) the practice of underground injection.

Ground water protection is a key program issue in the general public's perception. Not a day passes that yet another article does not appear detailing some new outrage against ground water pollution. These articles appear in every major and many minor newspapers and magazines across the country.

Much of the time the USEPA, the state regulatory agencies, the regulated industries, legislatures and the Congress are blamed for allowing pollution to continue.

Underground injection control is a positive, workable tool in the battle against ground water pollution. It uses well documented, scientifically recognized and tested technology which has been developed through many years of experience. It has an excellent track record for safety and a minimum of pollution incidents given the volumes we have mentioned.

Regardless of how effective the state/federal UIC programs have been to date, they need to apply even stricter inspection and enforcement standards than current funding will allow. The current level of appropriation--$9.1 million is completely inadequate to continue to build and sustain a highly effective underground injection control program of regulation. The Safe Drinking Water Act mandates a program of UIC regulation in every state and every territory of the United States. It is the policy of both the Congress under the law and the USEPA who is charged with implementing it, that states be the enforcement and implementation entities for carrying out the program. States do this except in some cases where jurisdiction has been refused. The USEPA has directly implemented UIC programs in these areas.

These programs, whether they are state or federally implemented, require at a minimum that injection wells be permitted and constructed according to strict technical specifications; that injection wells be tested periodically to insure that they do not leak; and that operating conditions be monitored closely and reported in great detail to the agencies responsible for their regulation. The agencies must have the capability of dealing intelligently and expeditiously with the information which they require from the operators of injection wells.

The skeleton of these programs is in place all across America. Now is the time to put muscle and sinew onto that skeleton through an increased appropriation; an appropriation of at least $17.3 million. The states stand ready to increase their contribution proportionately.

If you agree with us as to how crucial this program is, then it deserves to be funded at a level sufficient to guarantee a high order of success.

To date, the UIC program has achieved a good measure of success. This success has only been possible because of close cooperation between the EPA, the states and the regulated industries. If progress is going to continue to be made, this working relationship must be maintained. If the program is allowed to fail because of a lack of funds for an adequate regulatory and permitting program there will be increased potential for groundwater pollution and severe economic consequences in the regulated industries. There is no cost effective technology available--and probably will not be for years--that can take the place of underground injection.

To curtail future problems, it is vital that timely permitting of all classes of injection well be carried out; that meaningful state, regional and national data bases be developed to reflect not only the number of injection wells, but also the level of activity at each well, the constituent parts of its injected effluents and their volumes. High level monitoring and reporting systems must be developed which result in the capability for analysis of data rather than merely its collection and storage.

All this information must be integrated into a comprehensive national enforcement program to insure that violators do not go undetected or unpunished.

Also, public information systems should be put in place which will provide a factual analysis of injection practices. Underground Injection Control must be understood if it is to be viable. The common perception is that wastes are simply pumped or poured down a hole in the ground. This is not so. Injection wells are carefully contructed to rigid technical standards, tested frequently and often monitored continuously. They can be safe and environmentally desireable. They keep the price of many of America's essentials down because they provide a cost effective method of dealing with liquid by-products of the oil, mining, manufacturing and chemical industries.

Such compliance activities will be the major force in avoiding the pollution of ground water by the practice of underground injection. It is essential that state agencies not be hamstrung by inadequate funding.

Though underground injection has a more than 40 year history, the current magnitude of the problem has only been building for about a decade. The passage of the Safe Drinking Water Act by the Congress in 1974 was most timely. It was about this time that oil prices began to rise rapidly. Prior to 1974, oil had enjoyed a price level of about $3.00 per barrel. After the Arab oil embargo it rose to more than $30.00 per barrel.

This price rise made it economically feasible to produce oil from wells which were previously unprofitable. These marginal or "stripper" wells in many cases had been abandoned not only because of low oil production but also because of high salt water production. With the increase in price it became crucial that salt water disposal and enhanced recovery injection wells be more carefully regulated. Their numbers began to escalate rapidly. The growth rate continues today at approximately 10% per year.

While UIC programs have grown tremendously, the levels of funding have remained relatively stable. State agencies charged with the task of regulating these and the other classes of injection wells have not been able to keep pace with this growth rate. More staff with greater technical expertise is needed. A greater enforcement presence is essential if real teeth are to be put into the program. The only way these things can be accomplished is through an increased appropriation. The Underground Injection Practices Council urges the committtee to consider and appropriate an amount of $17.3 million for state underground injection control programs. This increase in the appropriation would be applied toward strenthening and extending the existing USEPA/State programs.

STATEMENTS OF:

DEBORAH J. HORTON, DIRECTOR, ENVIRONMENTAL TECHNOLOGY, UTAH TECHNICAL COLLEGE

ANDREW A. HOLTAN, CHAIRMAN, GOVERNMENTAL AFFAIRS, NATIONAL ENVIRONMENTAL TRAINING ASSOCIATION

Senator GARN. Next, if we could invite another Utahan up, Debbie Horton, and also we might have come up at the same time Andrew Holton.

Debbie, it is nice to see you again.

Ms. HORTON. Thank you.

Senator GARN. Please proceed.

Ms. HORTON. I am Debbie Horton from Utah Technical College at Provo, and I am the director of environmental technology. This year, I am also president of the National Environmental Training Association.

Andy, who is representing NETA, as well, will introduce himself when he begins to speak.

ENVIRONMENTAL TRAINING

In Utah, we have made good use of the moneys that this subcommittee has added on to EPA's budget in the past several years. The numbers that came out in the report to Congress were in error for region 8. Somehow, there was a blip in the system and the numbers did not get to the report in time. But we have diagnosed 24 treatment plants, and that is a combination of mechanical plants and marine systems in Utah. We have completed training at six, which are all in compliance with the NPS discharge permits. We are currently training in 13 systems. In July, we begin diagnosing 10 more. So we are using the magazine in Utah to get to the treatment plants that are violating their permits.

In addition, some of the moneys from last year were used to fund the national environmental training and technical assistance survey, which was done by the National Environmental Training Association, and we are using the results from that survey in writing the master training plan for the State of Utah. So we are using more than just in-plant moneys, we are also using the results from the surveys that have been completed.

We have found, however, in our search for self-sufficiency, that we are not quite finished with Federal money. We made two attempts in the past year to become self-sufficient and failed at both.

In the first one, we tried to convince the sponsoring legislator that had sponsored S.B. 163 that it would be a good insurance policy for that revolving capital construction fund if we could use a portion of the interest for training types of problems, which included the one in 4(G). He was not convinced and had worked too hard to gain additive moneys to use any of them for training programs. So we did not gain that from the legislature.

The second attempt was to get the League of Cities to sponsor a measure that would be an add-on to the Department of Health budget and would form a flow-through account that would fund operating training, including the one on the 4(G) project in Utah.

That one never reached the committee, because the Department of Health had the fear that if that was funded, then they would not get their additional staff loads that they were requesting for hazardous waste, and hazardous waste had become their top priority for next year.

So the Department of Health axed that one before it ever got to committee, so we dropped back on that. However, we are not done yet. We have a new plan, and this one is probably the best of the three. In looking at the NETA survey, they identified three elements of quality training programs, and those three elements are one full-time training person in the State, a master plan, and an adequate budget.

In Utah, although we have, we think, a very good training program, we only have one of those items at the current time. We have one full-time training person in the State, and that is me. So we are going to expand on that and write our master plan this year. We are working with the Department of Health, with all the members on the Joint Training Coordinating Committee, AWWA, and WPCF and the operators and all the concerned parties.

We will have that done in June, so that we can start working into the department of health budget, and we will take our proposal, along with the department budget proposal, to the legislature this coming year. So we are working very hard toward self-sufficiency.

I think in another year or two, we will have hit that goal. But if we lose the interim funding from EPA, which flows through you, our program would have to be abandoned. There are no other moneys at this point to run it. So what we are asking is a continuation until we can become self sufficient and handle that program on a statewide level.

Thank you.

[The statement follows:]

STATEMENT OF DEBORAH HORTON, ON BEHALF OF UTAH TECHNICAL COLLEGE AND THE NATIONAL ENVIRONMENTAL TRAINING ASSOCIATION

This testimony is presented on behalf of Utah Technical College at Provo, Utah and the National Environmental Training Association. Both organizations are dedicated to the training of operators and managers in the environmental field in order to improve water quality, operations efficiency, cost efficiency, energy conservation, and capital equipment longevity.

The Environmental Technology building at Utah Technical College at Provo is Utah's State Wastewater Operators Training Facility and was funded through Section 109 (b) of P. L. 92-500.

As this hearing applies to the Clean Water Act (P. L. 92-500), the testimony will present support for federal supplementary funding for wastewater personnel training, although both organizations are also involved in air, culinary water, solid waste and hazardous waste training.

Utah Technical College at Provo is making good use of 104 (g) (1) monies provided by Congress and dispensed by the EPA during the past 3 years. In this time, we have completed training at 6 plants, diagnosed 7 others, are currently training at 13 plants and will begin diagnosing 10 more in July.

Each one of the wastewater treatment plants in which we have completed training are in compliance with their NPDES permits and show substantial improvement in process control, maintenance, safety, and record keeping. The operators have shown an increased desire to become certified and use new knowledge gained to improve their plant performance.

The time has not yet come, however, that trainers can sit back on their laurels and praise each other for a job well done.

In March of 1985, an Operator Training Needs Assessment was compiled by Utah Technical College at Provo. The respondents indicated the following results:

1. The average longevity of wastewater operators is four years at a given plant. When rural Publicly Owned Treatment Works (POTW's) are staffed by one or two operators, a complete personnel turnover will probably take place at the plant every four to eight years.
2. Of the respondents, 22 percent said they had not violated their NPDES Discharge Permit Limitations in the past five years. Eighteen percent of the systems admitted to more than ten violations in the past five years, and nearly half admitted to one to three violations.
3. Fifty percent of the respondents said no start-up training took place while 23 percent weren't sure if there was start-up training because they did not work at the plant during start-up.
4. Sixty-five percent of the respondents reported that none of their current employees were present during start-up.

The high percentage of plants not in compliance or with an unacceptable rating insures that it will take several more years to complete training at each of the small POTW's in Utah. The combination of this fact, along with high employee turnover rates and inadequate start-up training, will guarantee that the program will be viable for some time to come. However, it is not anticipated that Congress or the EPA will fund this effort forever.

Utah has taken major steps this year to become self-sufficient and develop a comprehensive program to deal with the problems associated with maximizing the operation of wastewater treatment facilities. The first effort toward self-sufficiency was to amend SB 163, a measure to finance capital construction, to allow for the expenditure of a protion of the interest fund for operator training. The original sponsoring legislator refused to approve the amendment since he felt that capital monies should not be spent on administrative programs such as training.

When this amendment failed, a new measure was drafted in concert with the Utah League of Cities and Towns. This was a request to the Utah Legislature for an add-on to the Department of Health budget. The add-on would be in the form of "flow-through" contracts to state trainers to subsidize the seminar and in-plant training program. This measure failed because the Department of Health felt that an add-on to their budget would jeopardize their chances of gaining new funding for hazardous waste personnel.

Although we have failed at the first two attempts, we are developing further plans. In keeping with the three prime elements of a quality training program, as outlined by the National Environmental Training Association in the National Environmental Training and Technical Assistance project, the following steps will be taken in 1985:

1. One full-time training employee. Utah has already met this criteria with the position of Director of Environmental Training at UTC/Provo. The 104 (g) (1) project supplies another part-time individual and part-time instructors are hired for other training activities. It is anticipated that the staff will increase in the near future to handle the workload.

2. A state training plan. The Joint Training Coordinating Committee of Utah is currently authoring a Utah Operator Training Master Plan. This document will be completed by the first of June and will guide the development of the program through the end of the decade. The draft plan includes a rural awareness program that hopes to educate the rural operators, the public, and governing bodies to prioritize the operation and maintenance of

their wastewater systems more highly. Goals have been set for numbers of workshops to offer training to operators statewide with special care being taken to offer quality training in rural areas. And finally, the plan sets as a goal the development of an Integrated Compliance System which will coordinate the activities of training, compliance, plan review, monitoring, and other functions. Under this new system, the 104 (g) (1) project will continue, but the Department of Health will take over the function of diagnosing the plants and then referring capable plants to the College for in-plant training.

3. Adequate budget. The Master Plan will attach a cost to each element of the training program along with the most desirable method and source of funding. This means that it is probable that the College will continue to fund the Associate Degree program. Additional funding will be generated from user's fees and other sources. One possible source is to request a flow-through contract from the Utah Legislature, through the Department of Health, and to trainers. This would insure that funding is provided in the most cost-effective manner and would relate directly to the goals set in the Master Plan.

Utah is working very hard to reach self-sufficiency in funding operator training while at the same time trying to meet the exisiting training needs in the state. Since the 104 (g) (1) funding provides half a person in a one and a half person staff, it is vital that funding not be interrupted during this effort. A continuation of 104 (g) (1) add-on funding will be a key stepping stone to eventual self-sufficiency in all states.

Senator GARN. I can't tell you how much I appreciate your efforts to secure State financing, though you haven't been totally successful yet. But we appreciate the effort very much.

Please proceed.

STATEMENT OF MR. HOLTAN

Mr. HOLTAN. Thank you, my name is Andy Holtan. I am the chairman of the governmental affairs committee for the National Environmental Training Association. I am presenting this testimony on behalf of NETA in recognition of the need for a national commitment to the development of a competent environmental work force. NETA is a not-for-profit association of professional environmental trainers with membership encompassing all sectors of the environmental training community.

This testimony will focus on training needs in water quality control, waste water treatment, toxic and hazardous waste. We would also like to bring to your attention the fact that there is an urgent need for training in the other environmental fields. Our Nation faces a tremendous challenge for the 1980's. Although there is a strong support and commitment to environmental protection goals, we also must deal with the issues such as unemployment and care for our elderly. We must balance our Nation's fiscal resources equally.

Over several decades, our Nation has invested tremendous Federal, State, and local resouces in the construction of waste water treatment facilities. The Federal share alone amounts to some $37 billion and is still growing.

LONG-TERM REQUIREMENTS

If we are to accommodate growth projections for the year 2000, we will have to spend an additional $35.4 billion, totaling $53.7 billion. Obviously, we have a tremendous investment in the construction of water facilities, and we contrast that with the investment in training individuals to operate these facilities. We are only spending two-tenths of 1 percent. This is very startling when you consdier that in lesser developed countries they are allocating 1½ percent to training. Despite the huge investment in waste water treatment facilities, many of these facilities are not operating right.

Also are the problems of long-term operation deficiencies and neglect of treatment facilities. Most local governments are not adequately addressing their responsibilities for effective O&M. While the situation is serious, it is certainly not hopeless, and what is needed is an increased focus on people rather than on systems. Training and crews productivity and cost effective operation of treatment facilities also improves compliance, reduces enforcement costs, reduces chemical, electrical and other operating costs, and prolongs the life of the equipment. Thanks to this subcommittee, Congress has recognized the need for a national commitment to environmental training and has demonstrated this commitment through add-on funds for fiscal years 1982, 1983, 1984, and 1985. The appropriations have been and are being used to develop State waste water training capabilities that will ultimately be self-sustaining and self-sufficient.

One concept being considered as a potential tool for State training self-sufficiency is a proposal to mandate waste water operator training as required under Public Law 92–500. A similar training method has proved successful under the Resource Conservation and Recovery Act.

EPA SUPPORT

In fiscal year 1982, the add-on funds were directed toward operator training and technical assistance in 35 States. Virtually all of the projects, all of the States were reporting positive results, improved performance, improved compliance. One of the reasons why these technical assistance demonstration projects are proving so successful is that this funding, for the most part, is being administered through State training agencies, and organizations that have a history of commitment to waste water training. Also, at the same time, there is a strong working relationship being developed and hopefully being maintained between the training community and the regulatory communities. In fiscal year 1985, the funds were used to continue technical assistance. Thirteen additional States were involved, and in addition to that, Congress also requested that EPA submit a national training plan that would identify critical common program elements for effective State training programs and associated costs and to evaluate the status of State training capabilities. The report to Congress on training for operators of publicly owned waste water treatment plants just recently submitted by EPA represents a critical first step toward the national commitment to environmental training.

In fiscal year 1984, the funds were allocated to continuing the technical assistance programs, and also to assist statewide operator training program development, financial management, and technical assistance, and progress toward State self-sufficiency.

NETA was chosen to work with 13 States who have been identified as having effective operator training programs and to assist in the development in individualized State action plans designed to achieve programmatic and fiscal self sufficiency.

The funds for fiscal year 1985 will be allocated in much the same manner as the 1984 funds. Emphasis is on supporting States that are demonstrating compliance and prudent results and also to continue assisting the States in development of effective State training plans. The 13 States currently involved in the State plan project would be expanded to 23.

I will talk a little bit about some of the successes. Over 1,100 treatment facilities have received diagnostic inspections and 842 plants have received technical assistance. Of that, 412 plants are still in progress. Some 352 have attained full compliance.

An additional 132 have shown significant performance improvement. So clearly, the funds are being well spent and are having a very good impact on the operators.

HAZARDOUS WASTE TRAINING

I would like for a moment to shift your focus to hazardous waste training. The lack of a competent hazardous waste work force is, perhaps, of even greater concern. In a recent report on the Superfund strategy by the Office of Technology Assessment dated March 1983, several observations were made. Among them were that significant problems in the quality of technical work, a shortage of experienced technical experts, the fact that States lack technical know-how, they have difficulties obtaining experienced technical professionals and retaining them, and that by and large, the States, as a training ground for the Federal Government and the private sector, must continually hire experienced people and attempt to develop competencies with severe limitations on training and financial assistance.

NETA supports fiscal responsibility and State self-sufficiency, and we recognize that we are now in that transition period, at least in the field of water quality, and we recommend the following actions: One, establish a training function at EPA headquarters and the EPA regions; two, continue on-site assistance and fiscal management assistance; three, assist in the development of individual training plans of action at the State and Federal level; four, increase section 106 funding to help States implement training action plans; five, establish a task force to address the needs for increased public education and awareness; and six, in the hazardous waste area, establish Federal support for technical training programs.

NETA supports the recommendations of the OTA report and has the following recommendations: One, any efforts to address a hazardous waste work force needs would be enhanced by using the knowledge and experience gained in responding to the water quality work force needs; two, training action plans are critical at both National and State levels; and three, the development of a training action plan must be preceeded by a work force training needs assessment which assists not only the trainees but the training and work forces, as well. Our fiscal recommendations for the environmental work force field are the following: Under Public Law 92-500, section 101G(4) we recommend $5 million. Under section 106, we recommend a 10-percent increase over the funding for 106 last year.

In the hazardous waste field, we recommend that, as the OTA report does, that $5 to $10 million be allocated, perhaps annually, to expand training and educational programs; two, that funding in the neighborhood of $25 to $50 million be allocated to EPA to build up its in-house professional staff; and three, that the direct grants to States in the neighborhood of $25 to $50 million be allocated for their staff development.

I appreciate the opportunity to provide this testimony on behalf of NETA. We want to thank the subcommittee for their continued support and interest in this most critical area. Thank you very much.

Senator GARN. Thank you, Mr. Holtan. We appreciate you coming again, too. Are you going home today?

Mr. HOLTAN. Tomorrow morning.

Senator GARN. Tomorrow morning. I wish I could go with you. I haven't had much opportunity to be home lately. I was there over the weekend. I was asked if I was glad to be back on Earth. I said I was glad to be back in Utah.

Mr. HOLTAN. Are you a member of the Frequent Flyers Club?

Senator GARN. I was asking if Western Airlines would give me credit for my 3 million miles.

Mr. HOLTAN. I can't see why they wouldn't.

Senator GARN. I can't, either, but they won't.

Mr. HOLTAN. Thank you very much.

Senator GARN. Thank you.

[The statement follows:]

STATEMENT OF ANDREW A. HOLTAN, CHAIRMAN, GOVERNMENT AFFAIRS COMMITTEE, NATIONAL ENVIRONMENTAL TRAINING ASSOCIATION

INTRODUCTION

This testimony is presented on behalf of the National Environmental Training Association (NETA) in recognition of the need for a national commitment to the development of a competent environmental workforce. This testimony outlines reasons for a national commitment to environmental training; summarizes the current status of training capabilities (including an overview of what has been accomplished with previous Federal appropriations); and presents recommendations for program direction and future appropriations.

NETA is a not-for-profit association of professional environmental trainers, supported primarily by member dues and services. An environmental trainer is a vocational instructor in the environmental field or a "troubleshooter" who provides technical assistance in the operation and maintenance of water and wastewater treatment plants (as well as other types of environmental facilities and systems).

Environmental trainers may be employed by community colleges, universities, state training centers or local/state/federal government, as well as by consulting firms, industry and other private sector firms.

NETA's membership encompasses all sectors of environmental training; however, this testimony focuses on training needs in water quality control, wastewater treatment and toxic/hazardous wastes. The urgent need for training exists as well in the other environmental fields (air and noise pollution, solid waste and drinking water).

A NATIONAL COMMITMENT TO ENVIRONMENTAL TRAINING

Our nation faces a tremendous challenge for the 1980s. National polls and surveys consistently show widespread support among Americans for environmental protection goals. Yet, our society must also search for effective solutions to many other pressing problems, including unemployment, a national deficit, care for our elderly, and a troubled educational system. Our nation's fiscal resources must be fairly balanced, therefore, among these and other challenges.

Public Investment in Wastewater Treatment Facilities

Over several decades, our nation has invested tremendous federal, state and local resources in the construction of wastewater treatment facilities. The federal share alone amounts to more than $37 billion and is growing. The U.S. Environmental Protection Agency 1982 Needs Survey estimates that the backlog of current construction needs for wastewater treatment and interceptor sewers will cost an additional $35.4 billion. The projected total for existing facilities, to accommodate growth to the year 2000, will total $57.3 billion.

Clearly, we have invested and will contintue to invest tremendous financial resources in the construction of water quality control facilities. In contrast, our investment in training to develop competent workers to operate and maintain these facilities has been negligible: only two-tenths of one percent (.2%) of the amount spent for construction of facilities has been spent for wastewater operator training. This dismal statistic is even more startling when we consider that in Lesser Developed Countries, 1.5% of wastewater facility construction costs is allocated to training.

Despite the huge public investment in wastewater treatment facilities, many facilities are not operating efficiently. A 1983 study by the U.S. Government Accounting Office found that 86% of the publicly-owned treatment plants were in non-compliance with their NPDES discharge permits at least once during the 18-month study; 38% of the publicly-owned treatment plants studied were found in serious violation of their permit limitations. (GAO/RCED-84-53, "Wastewater Dischargers Are Not Complying with EPA Pollution Control Permits").

Future Federal Support to Local Communities

Of equal concern are the ramifications of serious long-term operational deficiencies and neglect of treatment facilities -- a grave situation that now approaches crisis proportions. Most local governments are not adequately addressing their responsibilities for effective operations and maintenance (O&M), because until recently the federal government has heavily financed treatment plant construction, renovation and replacement -- capital expenditures often necessitated by poor operation, maintenance and financial management of the treatment facility. Among small communities, the local user fee systems are grossly inadequate to support actual costs of effective operation, maintenance and management.

Since many local governments perceive the state and federal governments as a ready source of continual financial assistance, there has been little incentive to optimize plant operations and maintenance and fiscal management. This lack of awareness by local government is evidenced in the grim statistics on non-compliance of publicly-owned treatment works -- especially small facilities.

As the federal government now reduces fiscal support for construction, local governments are awakening to the true costs of poor O&M, especially its long-term impact on the capital investment. The scenario we see developing is: (1) many treatment facilities are not meeting their discharge permit requirements; (2) many plants suffer from poor operation and maintenance, resulting in the need for extensive construction, renovation, and replacement; and (3) small communities generally have totally inadequate financial management systems for wastewater plants, and local government is not prepared to assume financial responsibility for effective operations, maintenance and management. In short, the federal government may find itself pressed hard to "bail out" local government by financing extensive renovation, repairs and reconstruction -- the costs for which may equal or exceed the billions already invested to date.

While the situation is serious, it is not hopeless. What is needed is an increased focus on people rather than systems -- an increased emphasis on operations, maintenance and management rather than construction.

Through training, the goal of adequate environmental protection can be better balanced with other equally desirable goals because training improves productivity and cost-effective treatment plant operations. Training also helps to maximize the beneficial impacts of the dollars spent on environmental controls because a competent staff: improves compliance and reduces enforcement costs; reduces chemical, electrical and other operating costs; and prolongs the life of equipment through proper operation and maintenance.

National Municipal Policy

U.S. EPA's National Municipal Policy, adopted January 1984, has significant implications for wastewater operator training. The Policy requires that, by July 1, 1988, all publicly-owned treatment works meet compliance requirements, whether or not they receive federal funds. The U.S. EPA, the states and municipalities must make sure that operator training plays an integral role in the Composite Correction Plans (CCP) developed for achieving compliance, since operator training is effective in improving plant performance, reducing operating costs and prolonging the life of equipment and facilities through better operation and maintenance.

STATUS OF STATE TRAINING CAPABILITIES

WASTEWATER TRAINING

Congress has recognized the need for a national commitment to environmental training and has demonstrated its commitment by providing FY82, FY83, FY84 and FY85 "add-on" funds for training in budget appropriations for the U.S. Environmental Protection Agency.

As administered by EPA, these appropriations have enabled significant advances to be made in wastewater training and technical assistance. The appropriations have been and are being used to develop state wastewater training capabilities that will ultimately be self-sustaining and "self-sufficient."

State Self-Sufficiency for Wastewater Operator Training

While the concept of "self-sufficiency" for environmental training has been discussed informally for many years, the issue has been seriously addressed only recently. The self-sufficiency concept has been subject to widely different interpretations, and U.S. EPA, the States, and the training profession are now moving toward developing a uniform definition and understanding of self-sufficiency. As used in this Testimony, the term "state self-sufficiency for operator training" means that:

- state training capabilities must be programmatically sound, meeting minimum requirements and incorporating the "elements of good training capabilities" as identified in the State-to-State Project.
- ultimately, state's local funding sources should be used in supporting state wastewater training capabilities
- in the interim, however, states may use both direct and indirect federal support to establish a strong base for transition to a long-term, non-federal support

One concept being considered as a potential tool for state training self-sufficiency is a proposal to mandate wastewater operator training as a requirement under P.L. 92-500. A similar training mandate has proven successful under the Resource Conservation and Recovery Act (RCRA). A wastewater training requirement would be subject to a demonstration of programmatic self-sufficiency and might include:

- that an established percentage of construction grants must be allocated for operator training. This would assure effective operation and maintenance after the consulting engineer has demonstrated operability and completed the construction project.
- that a facility's operating budget must include operator training and an established percentage of a facility's user fee revenues should be allocated to operator training.

These and other innovative ideas are being examined as tools to generate support for training. However, the first step toward self-sufficiency is a clear understanding of what it is. In a recent national study, NETA has found that many state agencies, local agencies and training organizations are not aware of their responsibility for wastewater training self-sufficiency; many organizations, in fact, cannot even begin to define self-sufficiency. Further discussion and recommendations concerning wastewater training self-sufficiency appear on page 9 of this Testimony.

FY82 Funding: Technical Assistance at Small, Non-Complying Facilities

In FY82, Congress provided "add-on" funds in EPA's budget in the amount of $4.1 million for wastewater operator training and technical assistance aimed at improving municipal wastewater treatment facility compliance. These FY82 funds were used primarily to help thirty-five states conduct technical assistance demonstration projects at small publicly-owned treatment plants that were not in compliance with their discharge permits. Although most of these projects will not be completed until September 1984 or later, preliminary indications are that the technical assistance provided through these projects has been highly-effective.

In addition, the remainder of the funds was awarded to a consortium of the National Demonstration Water Project (NDWP), the National Environmental Training Association (NETA) and the American Clean Water Association (ACWA) for technical assistance to six states. The Association of State and Interstate Water Pollution Control Administrators (ASIWPCA) also received a portion of the funds to summarize and evaluate state operator training programs.

One of the reasons why these technical assistance demonstration projects are proving so successful is that this funding, for the most part, is being administered through state training agencies and organizations that have a history of commitment to wastewater training. This commitment assures quality control, cost-effectiveness and success. Furthermore, these projects are helping state regulatory agencies strengthen their relationships with training organizations, such as state training centers and community colleges. These projects, therefore, are providing a solid foundation upon which strong working relationships can be maintained for the future.

FY83 Funding: Expanded Technical Assistance, Evaluation and a National Training Plan

For FY83, Congress provided add-on funds for wastewater operator training in the amount of $2.625 million. These funds were used to continue technical assistance at small treatment facilities and to expand technical assistance efforts by providing financial management assistance. In addition, thirteen more states were involved in FY83 projects than were involved in FY82. FY83 funds were also used to evaluate the effectiveness of training and technical assistance projects funded under FY82 and FY83 appropriations. Congress also requested U.S. EPA to submit a national training plan that identifies critical, common program elements of effective state training programs and associated costs and to evaluate the status of state training capabilities.

The Report to Congress on Training for Operators of Publicly Owned Wastewater Treatment Plants represents a critical first step toward the national commitment to environmental training. The report articulates wastewater training issues in the context of Federal, State and local roles; furthermore, the report provides guidelines to enable Congress, U.S. EPA, state regulatory agencies and the training profession to work together as partners in addressing environmental workforce needs. In the report, U.S. EPA has established a sound framework for the partners in workforce development to continue to define, refine and address training issues. The FY83 funding guidance was essentially a continuation of the FY82 funding criteria. However, U.S. EPA also urged states to use a portion of the funds to provide financial management and operator technical assistance to communities and to develop statewide financial management policy guidance. This additional recommendation was based on findings indicating that performance and compliance problems are caused by inadequate local financial management and inadequate user charges for operations and maintenance. Limited funds were additionally awarded to selected states to aid them in describing their operator training organizations.

FY84 Funding: Expanded Technical Assistance, Training Program Development and Self-Sufficiency

Congressional add-on appropriations for FY84 amount to $2.625 million. U.S. EPA is now completing allocation of FY84 funding, which will be used: (1) to continue technical assistance efforts at small POTWs; (2) and to assist statewide operator training program development, financial management technical assistance and progress toward state self-sufficiency. Using FY84 funds, a $500,000 grant was awarded to NDWP to continue their successful training and technical assistance efforts and to work with selected states to assist in operator training program development, provide financial management technical assistance and to support progress toward self-sufficiency. A grant was also awarded to NETA to work with 13 states, identified as having effective operator training programs, in the development of individualized action plans designed to achieve programmatic and fiscal self-sufficiency. These 13 states additionally received very nominal supplemental grant funds for program development support. While FY82 and FY83 add-on funds were allocated to obtain maximum state participation, FY84 funds will be allocated more selectively, targeted to help those states that have demonstrated a commitment to the training and technicdl assistance effort.

FY85 Funding: Support to States Committed to Training and Technical Assistance, Continued Development of State Operator Training Programs

Congress provided add-on funds in the amount of $2.6 million to the FY85 budget for wastewater operator training. These funds will be allocated in the same manner as the FY84 funds, emphasizing support to selected states with demonstrated compliance improvement results and with a commitment to on-site training and technical assistance in small communities. A portion of the funds will be awarded to NETA to continue assisting with the development of effective state operator training programs in 23 selected states.

Compliance-Oriented Training and Technical Assistance

States are demonstrating important compliance improvements through the use of FY82 and FY83 appropriations for on-site training and technical assistance. Over 1,100 facilities received problem diagnostic inspections. Of these facilities, 842 plants receive technical assistance; technical assistance is still in progress at 412 plants. Full compliance has been achieved at 352 plants as of November 1984, and an additional 132 plants have shown signigicant performance improvement with the exception of plants with significant non-training, EPA expects the plants that received technical assistance under FY82 and FY83 grants to achieve NPDES compliance by the end of FY85. In addition to hundreds of plants achieving NPDES compliance, the FY82 and FY83 104 (g)(1) add-on appropriation grants have, according to EPA's Report to Congress, made the following contributions:

- improving local decision-maker involvement in plant operations and maintenance and financial management;
- improving treatment process control management;
- introducing preventive maintenance programs and ensuring repair of equipment;
- reducing energy and sludge-handling costs;
- improving laboratory, record-keeping, and reporting practices;
- improving infiltration/inflow management; and
- identifying operator certification and continuing education needs

In summary, these case histories are outstanding examples of the effectiveness of training and technical assistance.

HAZARDOUS WASTES TRAINING: A WORKFORCE CRISIS

The lack of a competent hazardous wastes workforce is of an even greater concern. A workforce crisis in the hazardous wastes field is imminent. The lack of competent and experienced professionals in hazardous wastes will significantly impede our efforts to effectively manage hazardous wastes. In a recent report on the Superfund Strategy (Mar 1985) by the Office of Technology Assessment (OTA), the following observations were made:

> "In case histories of Superfund cleanups by OTA and others there is evidence of significant problems in the quality of technical work. . . . Moreover, a shortage of experienced technical experts in several fields may explain a lack of quality performance now and it may cause a major bottleneck in an expanded Superfund program. . . . OTA estimates the demand for technical professionals (primarily, bachelors level) to work on cleanups of uncontrolled sites may rise from the present 3,750 to about 21,000 by 1995 and then stabilize at that level. . . . This projection assumes an increased national cleanup effort of about $4 billion annually from all sources" (p.32).

As the report notes the lack of competent and experienced professionals in the hazardous wastes field is most acute at the state level.

> ". . . many states lack technical know-how and people to assume major responsibilities for leading cleanups, or to carry out other aspects of the Superfund program such as site identification, selection, and long-term monitoring. . . . For the most part, states have difficulties obtaining experienced technical professionals. Even with current spending, the demand for such professionals is so great that most states cannot offer competitive salaries" (p. 36).

The states, as the training ground for the federal government and the private sector, must continually hire inexperienced people and attempt to develop competencies with severe limitations on training and financial assistance.

The crises proportions of this workforce need are well summarized by the OTA.

> ". . . not enough technical specialists, little time to control sites to prevent great damage to public health and the environment, and costs so great that they might be impossible to meet. In other words, a planning mistake now based on an underestimate of the national cleanup problem could result in an environmental crisis years or decades from now" (p. 17).

The findings of the OTA report agree with the personal observations of several of the members of this NETA Governmental Affairs Committee.

PROGRAM RECOMMENDATIONS

The National Environmental Training Association supports fiscal responsibility and state self-sufficiency for environmental training capabilities. However, an abrupt and complete elimination of all federal support would result in the near-abolishment of training in most states. An orderly transition period is necessary to enable states to prepare for this enormous responsibility and to develop individual state strategies which will gradually reduce federal assistance and increase local funding over a discrete period of time, ultimately resulting in state training capabilities that are primarily self-sustaining and programmatically sound.

We are now in this transition period and the National Environmental Training Association recommends that the following actions and activities be undertaken and supported by federal appropriations:

Establish a Training Function at U.S. EPA Headquarters and Each U.S. EPA Region

Within the U.S. EPA Office of Water, a focal point must be established and maintained for the training function and resources must be provided for staff positions to plan, direct, and provide overview and training grant management. With clearly-defined staff responsibilities for training, the effectiveness and efficiency of wastewater training and technical assistance activities can be maximized. -

Continue On-Site Technical Assistance and Fiscal Management Assistance

The technical assistance projects begun under FY82 and FY83 appropriations are filling critical training needs at small facilities -- especially those facilities not in compliance with their discharge permits. As administered by U.S. EPA, this use of federal funds is establishing the seeds of state self-directed and self-sufficient technical assistance outreach programs. These efforts are already bearing fruit and should be continued and expanded through FY85 funding under Section 104(g)(1) of P.L. 92-500.

Assist in Development of Individual Training Plans of Action

If state self-sufficiency lies at the heart of effective, self-supporting training capabilities, then the first step toward such self-sufficiency must be for states to develop their own training plans of action -- plans that are fiscally and programmatically self-sufficient. It is not enough, however, for the Federal government to provide only financial assistance; guidance, direction and technical assistance must also be provided so that state self-sufficiency can be approached effectively.

The multi-year technical assistance effort should be continued, therefore, to help states develop and implement state training action plans.

Increase Section 106 Funding to Help States Implement Training Plans of Action

The development and implementation of state training plans will require a significant investment of human, material and financial resources. Federal support should be provided, under Section 106 of P.L. 92-500, to help states develop and implement their training plans of action. It is recommended that 106 appropriations be increased by 10% in FY85 and that these added monies be used exclusively to support the multi-year development and implementation of state training plans. This federal support will represent interim financial assistance toward the ultimate goal of self-sufficiency. Tentatively, a time-frame is envisioned as follows:

- 23 states will use FY85 and future 106 appropriations to achieve self-sufficiency by 1990
- the remaining 27 states will use future Section 106 appropriations to achieve self-sufficiency by 1993

Establish Task Force to Address Need for Increased Public Education/Awareness

While most Americans strongly support the concept of environmental protection, the average citizen does not associate this concern with the vital need for effective water and wastewater treatment plant operations. This lack of awareness means that the general public does not appreciate the huge public investment in treatment facilities or recognize the true costs and benefits of effective operation and maintenance.

In conjunction with EPA's final report to Congress on operator training, a vigorous public education campaign should be launched to increase public awareness of the commitment required for effective environmental protection. Specifically, the general public must understand that:

- a wastewater treatment plant is a large public investment that must be protected and maintained
- for small communities, annual plant operating costs are probably the largest single item in a community's annual budget
- trained workers can increase plant performance and compliance, and can reduce plant operating costs through better operation and maintenance practices
- the community must provide adequate financial support to properly staff, operate and maintain the treatment plant

NETA recommends that a Task Force be established to examine the need for increased public education/awareness and to make program recommendations. The Task Force should include representatives from all of the workforce development partners.

Establish Federal Support for Technical Training Programs

The OTA report recommends that federal support for technical training programs be established with "... significant spending for several efforts aimed at strengthening institutional capabilities ...". NETA supports the recommendations of the OTA and has the following specific observations and recommendations:

- The issues and workforce problems for hazardous wastes are much the same as those for the water quality workforce. Any efforts to address the hazardous waste workforce needs would be enhanced by using the knowledge and experiences gained in responding to the water quality workforce.
- A training action plan is critical to maximizing limited resources and time to realize a competent hazardous waste workforce. Training Action Plans are critical at both national and state levels.
- The development of a training action plan must be preceded by a workforce training needs assessment which determines not only training needs, but training capabilities and resources as well.

FISCAL RECOMMENDATIONS

U.S. EPA's Report to Congress and NETA's program recommendations outlined above present significant challenges for environmental training. These challenges require a national commitment backed by financial support. The National Environmental Training Association recommends the following federal appropriation levels to support the environmental training goals recommended herein:

P.L. 92-500

Section	Amount	Purpose
104(g)(1)	$5,000,000	(1) to continue on-site training and technical assistance and financial management assistance; (2) to support development of state training plans of action
106	For FY85, a 10% increase over current level of total Section 106 appropriations	These added monies will be used exclusively to assist states in quickly achieving the goal of the training plans of action: fiscal and programmatic self-sufficiency

The National Environmental Training Association supports the recommendations of the OTA which states that:

"... Congress may wish to consider:

1) funding various expanded training and educational programs, perhaps $5 million to $10 million annually for some years;
2) providing funding for EPA to build up its inhouse professional staff in disciplines appropriate for cleanup work and oversight, perhaps increased funds of $25 million to $50 million annually;

3) making direct grants to the states for their staff development, perhaps $25 million to $50 million annually for source years; . . ." (p. 32).

In addition, NETA recommends that Congress authorize additional Federal appropriations to support: (1) the establishment of a training function with the U.S. EPA Office of Water; and (2) the establishment of a task force to address the need for increased public education/awareness.

The National Environmental Training Association appreciates this opportunity to provide Testimony on behalf of the environmental training profession.

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STATEMENT OF DONALD R. ARKELL, DIRECTOR, LANE REGIONAL AIR POLLUTION IN EUGENE, OR, ON BEHALF OF THE ASSOCIATION OF LOCAL AIR POLLUTION CONTROL OFFICIALS

PREPARED STATEMENT

Senator GARN. Right on schedule, the next witness has submitted his statement for the record.

STATEMENT OF DONALD R. ARKELL, LANE REGIONAL AIR POLLUTION AUTHORITY, ON BEHALF OF THE ASSOCIATION OF LOCAL AIR POLLUTION CONTROL OFFICIALS

Mr. Chairman and members of the Committee, my name is Donald Arkell and I am the Director of the Lane Regional Air Pollution Authority in Eugene, Oregon. I am here today representing the Association of Local Air Pollution Control Officials (ALAPCO) where I currently serve as a member of the Board of Directors and as a member of the ALAPCO Program Funding Committee. I appreciate this opportunity to testify on the subject of the FY 1986 budget for the Environmental Protection Agency.

There are over 200 local air pollution control agencies in the United States. It has been well documented that local and state air pollution control programs have achieved substantial reductions in air pollution in the last decade. It is local air pollution control agencies that perform many of the activities the Clean Air Act requires to improve and maintain our nation's air quality, particularly in our more densely populated metropolitan areas.

The Administration recently requested $95 million for local and state grants under Section 105 of the Clean Air Act for

FY1986. The sum of $95 million represents an increase of $4.3 million over the actual amount distributed in FY 1985. However, this figure reflects a decrease of $100,000 from the amount appropriated by Congress for FY1985. The discrepancy between actual and appropriated Section 105 funds is the result of EPA's reprogramming $4.4 million from local and state air grants for enforcement activities to the hazardous waste program. Because of these funding decreases, several important activities of EPA's air program have suffered dramatically, including: a pilot acrylonitrile control project; anti-tampering; and asbestos demolition.

Local agencies understand and appreciate the magnitude of the national deficit problems with which the Administration and Congress are wrestling. We recognize, based on news accounts, that a broad spectrum of federally-funded programs will probably be affected as part of any meaningful national deficit-reduction package. In view of this, a survey of selected local air pollution control officials indicates that there is support for the level of funding for air programs under Section 105 of the Clean Air Act that is being proposed in the President's budget for FY 1986. It is seen as being about what can reasonably be expected at this time.

While this, in itself, may not be a remarkable conclusion, I am here today to emphasize the fact that even at the proposed level of funding local agencies are experiencing deterioration of basic program elements required to implement the Clean Air Act and, in many cases, will be unable to assume new federal programs.

Since 1979, there has been a 24 percent decline in the real funding levels for air programs. Inflation, coupled with the loss of revenues due to financial strains of the recent recession, has diminished our ability to compensate for rising costs through alternate sources of revenue. This has increased the difficulty of addressing air quality problems at the level the public expects.

Historically, as funding assistance to state and local agencies declines, the first effects are generally felt at the local level. It is also a fact that over the past few years staffing for state and local programs has been decreasing, mostly in local agencies. This, in our view, is an indication that signficant erosion in essential local programs and some shifting of responsibilities for federal requirements to states has already occurred. The drop in local staffing in recent years may also be a forecast of the future of state programs.

This decline of effectiveness of air pollution control at the local level ought to be of concern nationally. Local governments have accomplished much over the years with federal funding provided for air pollution control activities. Despite the gains made in reduction of emissions over the last decade, there continue to be residual nonattainment problems which affect some 90 million Americans in our major urban centers, many of which are regulated by local air pollution control agencies. These agencies, for the most part, have accepted delegation of the mandated federal programs either directly or from their respective states. They have supplemented those programs with additional activities to address area sources, which historically have not been deemed national problems but, nonetheless, are local problems.

In the view of a growing number of air program administrators at all levels, it is the smaller area-type sources handled outside the federal program that account for much of the residual nonattainment in the urban areas. Thus, if efforts to control these kinds of air pollution sources decline due to reduced resources, the prospects of reaching mandated air quality standards are correspondingly reduced.

The results of a recent ALAPCO survey reveal some insight about funding and local air agencies:

- 38% reported that, even at level funding, decreases in air pollution control activities will occur. These activities included: SIP development for sulfur dioxide, particulates, nitrogen dioxide and carbon monoxide; enforcement; compliance determination; permitting; training; and air toxics monitoring.

- 20% indicated that at least one of these decreased areas is considered a high priority program for the agency.

- 58% indicated under-staffing for existing programs. Staffing shortages occur at all levels, including professional, technical, administrative and support personnel. This does not consider any new programs on the horizon where program development and additional resources will be needed.

- Approximately 64% of the local agencies responding to our survey listed air toxics as the first new program they would implement if additional funding were provided. This statistic is quite revealing in that it signifies the enormous public pressure directed at state and local agencies to respond to public concerns on air toxics. The tragedy which occurred in Bhopal, India has increased public concern over both the dangers of continual releases of toxic substances, as well as those from sudden massive releases of chemicals as a result of accidents or malfunctions.

- There are other emerging critical issues that are not now adequately addressed. In ALAPCO's survey, 40% of the respondents listed indoor air pollution and 33% listed woodburning emissions as important new programs in need of funds.

There are recent studies which suggest that the total risks to the public from environmental contaminants are most prevalent from air pollution. Yet, some continue to downplay the significance of the air quality control program. They refer to the Clean Air Act as a "mature" program, intimating that the national commitment to the air program can be reduced. We would view this as a serious mistake. The members of ALAPCO believe that the gains made in basic air programs necessary to meet the health-based standards can quickly lose ground without a sustained level of effort. Moreover, new programs cited above are every bit as embryonic now as the traditional programs for the health-related standards were fifteen years ago, when the Clean Air Act was first passed.

In conclusion, while local agencies are supportive of the Administration's proposal, we believe it is important to maintain the federal commitment at least at current levels in the short run. We are at a point where we can no longer do more with less. There is growing evidence that Clean Air Act requirements already imposed are outstripping the available resources, and state and local agencies are increasingly reluctant to assume new delegations without new resources. We urge Congress to consider this as it deliberates on the current budget and on future program requirements of the Clean Air Act.

Thank you for the opportunity to testify. I would be happy to answer any questions.

Funding Survey of Local Air Pollution Control Programs

The Association of Local Air Pollution Control Officials (ALAPCO), which represents over 200 local air pollution control agencies in the United States, recently surveyed its membership in order to better ascertain the status of funding for local air pollution control programs. Forty-five local agencies from across the country participated in the survey. These agencies are located in twenty-six states from every EPA region except Region I (New England). This report is a summary of the questionnaire results.

The purpose of this report is to document the trends in financial support for local air quality control agencies over the past few years and evaluate the impact of level funding on the quality of local air pollution control programs.

Trends in Financial Support

The funding for local air quality control programs traditionally has come from a variety of sources: the federal government, through matching grants under Section 105 of the Clean Air Act; state governments; and local governments. Federal funds are made available to local agencies in two ways. Some local agencies can receive direct funding from EPA through grants under Section 105. Other local agencies receive federal funds after the funds have first "passed through" the state agency. These federal grants, both direct and pass-through, constitute approximately one-third of a typical local agency's operating budget.

Federal funding for local air programs in real dollars has steadily decreased since 1979. As a result, local and state air pollution control agencies currently operate on budgets with less purchasing power than they had in the early seventies. At the same time as the purchasing power of local agencies has been decreasing, their responsibilities under the Clean Air Act have greatly expanded.

In order to appreciate trends in financial support, it is necessary to examine the program requirements of local air pollution control agencies. Local air pollution control agencies have been granted primary responsibility under the Clean Air Act to control air pollution. Local agencies inspect sources and issue permits to construct and operate. Local agencies monitor existing sources to ensure that they comply both with ambient air quality standards and the specific requirements of construction and operating permits. Local agencies also initiate enforcement actions against sources that violate air pollution control regulations. However, notwithstanding some impressive gains that have been made in air quality over the past decade, local agencies are beginning to experience deterioration of basic program elements that are required under the Clean Air Act.

Almost every agency that responded to this survey indicated that, over the past few years, they have received either decreased or level funding from federal and state governments. Since FY1984, federal funding for 34% of the local agencies has decreased. This includes direct funding from the U.S. Environmental Protection Agency and federal funds that have been "passed through" by the state air pollution control agency to the local agency. Over one-half of the local agencies have had level funding from the federal government in actual dollars, although level funding in actual dollars represents a decrease in funding when adjusted for inflation. Appropriations from the states to local agencies have decreased for 29% of the local agencies and remained level for 62%.

For many agencies (40%), local appropriations have increased to compensate for the decrease in federal and state support. However, almost one-half of the agencies have had only level funding through local appropriations. Many local agencies depend on supplemental funding in addition to federal, state and local appropriations. The types of supplemental funds include permit fees and civil settlements. A clear majority of the local agencies (over 60%) receive less than one-quarter of their total program costs from supplemental sources. Of the local agencies that responded to the survey, only three agencies reported that supplemental funding was a significant source of revenue last year (at least 70% of total program costs). Local governments are unable to compensate fully for the real dollar reductions in federal and state support.

Impact of Level Funding on Local Air Quality Programs

Local air pollution control agencies have been operating over the past few years with level or decreased funding from EPA and the states. Unfortunately, level funding cannot maintain current local air quality control programs. The Environmental Protection Agency has requested approximately level funding for state and local air pollution control grants for FY1986. Even with level funding, 38% of the local agencies reported that they would have to decrease their air pollution control activities. Among the activities identified by these agencies are development of State Implementation Plans for sulfur dioxide, lead and carbon monoxide; enforcement; compliance determination; automobile inspection and maintenance; and air toxics monitoring. Twenty percent of the agencies indicated that at least one of these areas of decreased attention is considered a high priority for the agency.

Seventy-five percent of the local agencies that responded indicated that they currently are understaffed for their existing programs. Staffing shortages occur at all levels, including professional, technical, administrative and support personnel. Understaffing impairs an agency's ability to carry out all the activities that are required for an effective air quality control program. The effectiveness of a local agency's program has a tremendous impact on the quality of air for our citizens.

The number of additional staff positions needed by local agencies ranges from one to twelve people. Most of the agencies indicated that they need two or more staff positions to meet the current requirements of their local air quality control programs. Considering that the average size of the local agencies in the survey is approximately eleven people, these staffing needs represent a significant increase in staff size.

At the same time as local agencies need additional staff positions, these agencies also are experiencing a high rate of turnover of their employees. The average employee turnover rate over the past four years for local air quality agencies is above 10%. Given this influx of new employees, most of whom lack experience in the field of air pollution control, local agencies depend on formal training programs to insure that new employees have an adequate level of expertise. Advanced training programs dealing with new air pollution regulations and techniques also are used by local agencies to train their experienced staff.

Fifty-seven percent of the local agencies utilize EPA's training programs for over one-half of their total training needs. Unfortunately, EPA's budget for training activities has been substantially cut in the proposed budget for FY1986. The budget reductions in EPA's training program will have an adverse effect on the ability of local agencies to guarantee its citizens an experienced and well-trained staff.

Impact of Level Funding on Emerging Air Pollution Control Issues

Level funding makes it extremely difficult for local agencies to address emerging areas of concern in air pollution control. Approximately eighty percent of the local agencies cited air toxics as the first new program they would implement if additional funding were provided. This statistic reflects the enormous public pressure directed at local agencies to control toxic air pollution.

There are other new initiatives that local agencies would implement if funding were increased. Fifty percent of the respondents listed indoor air pollution, 39% listed emissions from woodburning, and 13% listed waste oil burning as important new programs that need funding. Given that local agencies must continue to implement their current air quality control programs and that the federal government proposes to continue level funding for FY1986, many local agencies will be unable to address these critical, new issues.

Conclusions

Funding for local air pollution control programs has continued to decrease in real dollars, both from federal and state government appropriations. For FY1986, the Environmental Protection Agency has requested level funding for federal grants to local and state air quality agencies. Unfortunately, level funding adversely affects the quality of local air pollution control activities in a number of ways:

- Due to the effects of inflation, level funding represents an actual decrease in real dollars;
- Even with level funding, 38% of the local agencies will have to decrease air pollution control activities in FY1986;
- After years of level funding, seventy-five percent of the local agencies are understaffed based upon current programs needs. Reductions in EPA's training budget threaten the ability of agencies to insure that their existing staffs have the necessary expertise in air pollution control; and
- Local agencies cannot implement critical air pollution control initiatives, such as the control of air toxics, indoor air pollution and woodburning, without additional funding.

Over the past fifteen years, the air quality of the United States has improved dramatically. Much of the responsibility to control air pollution and maintain good air quality rests with local air pollution control agencies. However, level funding seriously jeopordizes the ability of local agencies to fully implement their air quality programs. Budgetary considerations may prohibit the federal government from increasing its grants to local agencies. Nonetheless, the maintenance of current funding levels seriously constrains local agencies in their efforts to maintain and improve the nation's air quality.

CONSUMER PRODUCT SAFETY COMMISSION

STATEMENT OF ALAN FOX, LEGISLATIVE REPRESENTATIVE, CONSUMER FEDERATION OF AMERICA

Senator GARN. Is Mr. Fox here, Mr. Alan Fox?

Mr. Fox, we will get you up ahead of schedule.

Mr. FOX. That sounds good to me. I have to give the same testimony on the House side to the same subcommittee in about 2 hours, so I would be glad to get out of here a little bit early.

Mr. Chairman, my name is Alan Fox. I am legislative representative for the Consumer Federation of America. CFA represents over 200 local, State, and National consumer organizations with a combined membership of over 30 million people.

I have been on the CFA staff for the last 6 months and wanted to let you know my other priority area is banking, so I think we will probably be running across each other in other forums in the next 2 years. I appreciate the opportunity to testify on funding for both the Consumer Product Safety Commission and the Environmental Protection Agency.

We have submitted our material for the record, and I will do my best to simply summarize it today, beginning with some comments on funding for the CPSC and then continuing with comments about indoor air pollution research which affects both the CPSC and the EPA.

CPSC FUNDING REQUEST

We are disappointed in the administration's request for funding for the CPSC and find it to be shortsighted. CPSC is probably the taxpayer's best bargain, as measured by the lives saved, the injuries prevented, and its cost effectiveness. We think it has been an effective and an economically efficient agency.

The cuts that have been proposed this year, on top of previous years, will impair the agency's effectiveness.

In its short history, with very limited budgets, the Commission has done a remarkable job of promoting consumer product safety. Two years ago, CFA concluded in the study of the CPSC that the death rate due to household accidents fell twice as much after the CPSC began as it did in the preceding 9 years and that the rate of disabling injuries fell at an even faster rate.

We have presented tables updating that report as part of our testimony. They indicate that through more recent data, through the first 11 years of the CPSC's existence, we estimate that there have been 6.4 million fewer deaths and disabling injuries and in-household accidents in the time the CPSU has been in operation, even allowing for the decline in the rate of deaths and the decline in the rate of injuries that was existing before the CPSC took effect.

As a result, consumers, businesses, and the government have saved $21.2 billion in 1983 dollars in reduced health care costs. That comes to about 40 times the cost of the CPSC's budget for the entire time that it has been in operation.

Furthermore, we would cite the 1983 "Consumerism" survey conducted by Lou Harris, which found that the CPSC is the only Federal agency with strong public support and that, in particular, there is strong support for consumer safety regulation. Forty-eight percent of those surveyed said the Government has not done enough to regulate dangerous products, and only 12 percent say the Government has gone too far.

CPSC CUTS

In those contexts, we find the $33.7 million proposal of the administration and of the Commission for the CPSC's budget to be irresponsible. It is a 53-percent cut in constant dollars from the first budget in 1974 and a 10-percent cut from the current year's budget.

As a result of these cuts, many areas of great need will either be ignored or not adequately addressed by the only agency which is equipped and empowered to deal with them. I think Commissioner Statler's letter of March 22 to you, Mr. Chairman, which I believe was included in the record of the March 27 hearing on CPSC adequately summarizes and explains, actually in some detail, the many, many areas that CPSC has already determined, despite evidence of problems, that they will be unable to go into because of budget cuts.

Since 1981, the budget cuts in the CPSC have cut out muscle and not cut out fat. Additional cuts, we believe, will cost lives. They will cause avoidable injuries, and they will add to the health care costs of this country. At the very least, we believe Congress should provide an increase for this year's appropriation which would allow CPSC to keep pace with inflation. We believe this will signal Congress's intent to keep CPSC, which is a very effective agency, on the job protecting consumers from the hazards of consumer products.

INDOOR AIR POLLUTION

In addition to some of the hazards which have been listed, we found that the CPSC's ability to investigate indoor air hazards have been severely limited under the current budget cut. Indoor air pollution has been designated by CFA as our highest priority safety and health issue for this Congress. Indoor air pollutants cause millions of illnesses every year. Those illnesses cost lives and they cost our economy tens of billions of dollars a year in health care costs and in lost income. It is a very broad and diverse area, and that has been a problem in trying to identify and focus attention on the area. It is a public health problem which, if it had a single cause or a single set of symptoms, we believe would be considered an epidemic of major proportions which call forth the full resources of our public health system to search for cures.

There is some limited information already available. The CPSC studied 40 typical homes and found from 200 to 150 hazardous chemicals in each home at concentrations from 10 to 45 times greater than outdoor concentrations. We have also seen data that indicates that most people spend between seven to nine times as much time indoors as outdoors. You can understand the consequences of that increased exposure.

We think there is a lot of research that needs to be done before we can identify any particular solutions in most cases.

But despite this need for more research, in order to make some intelligence policy decisions, the commitment to indoor air quality seems to be melting away to almost nothing.

The CPSC plans to spend $600,000 in fiscal year 1986 on indoor air quality, and that is half of what they spent in 1984. The Environmental Protection Agency, which in the past 2 years has received $2 million a year for indoor air research, has had its indoor air pollution research funding eliminated from this year's budget.

CFA has presented the subcommittee with our preliminary version of a document titled, "Indoor Air Pollution, a Program for Action," which was compiled with the assistance of scientists working in the field, both in public and private sectors. Copies of the report have been supplied to the committee.

I don't know what the rules of the committee are on including a document of that length in the record. If it is possible, we would like to do that. If not, the introduction is about seven pages.

The largest need we found in the report is funding for research. We have identified over $50 million in research projects which should be undertaken in the next several years. That is an incomplete compilation. In some years, we weren't able to get specific details from the people in the field. The CPSC is the only agency that can deal with the indoor air pollution problem which are caused by emissions from consumer products. We have identified some research items which fall under the CPSC's authority. Many of them were also identified by Commissioner Statler under his letter, although not under the heading of indoor air research. While additional research is the highest priority, there are several other steps which need to be taken at the same time to allow policymakers, researchers, and consumers to use that research effectively.

These include proposals for disseminating research findings to consumers for involving private researchers and the public in air quality planning and coordination.

MULTIPOLLUTANT SURVEY, EPA

We have identified several steps which we believe the subcommittee can and ought to take in the EPA's 1986 appropriation to further these goals. We recognize that budget limitations make it difficult to allocate any substantial amount of money, but we think there are some very minimum needs which can be addressed this year and may be easier in future years to proceed properly. We have recommended, first of all, funding for multipollutant field survey. This has been identified by private researchers, businesses, public interest organizations, and government agencies as a very important step, very important first step in much indoor air research.

The Interagency Committee on Indoor Air Quality said in its recent strategy document that that survey is necessary to identify and focus

CIAQ research efforts and to control indoor air pollution and to assess the impact of future energy conservation.

Our understanding is that that survey will take 3 to 5 years to conduct. The total cost is estimated at $12 million and it is not clear whether the survey itself can even be begun in the coming year. But certainly, some preparatory steps need to be taken. We would strongly urge the subcommittee to propose funding for this credible task.

Second, in the last Congress, the HUD-Independent Agencies appropriation bill included a general EPA indoor air appropriation of $2 million. That was also the figure included in the previous year. We believe that the research needs that have been documented can't be postponed any longer, and we would urge funding for research besides the field survey of at least $4 million a year to begin to meet those needs.

Third, we would urge the Congress to budget, authorize, and fund an information clearinghouse on indoor air pollution through the CIAC computer. This clearinghouse would provide information to the State, local, and public and State national agencies, public and private, which respond to questions about indoor air quality problems. This clearinghouse should not cost more than about $1 million a year to conduct.

A fourth step is we believe that the Congress should require CIAQ to establish a public advisory committee consisting of representatives from citizen groups, State agencies, private industry, and the research community to provide improved opportunities for communication between CIAQ and interested public or private sector parties regarding those agencies' research priorities, research findings, and public information efforts.

In summary, we believe that EPA's appropriation for indoor air pollution research must be expanded and not eliminated. We believe that a case can be made for a substantial effort, but we are certainly aware of the budget realities this year.

So we encourage, in that context, the committee to consider three clear indoor air priorities: First, maintaining an adequate level of research; second, the multipollutants field study; and third, a public information clearinghouse, which we think are necessary and constructive for this year.

We have concentrated testimony today on two areas where we believe that relatively small amounts of public spending have and will continue to return dividends to consumers and directly to the Government in reduced health care costs. The CPSC has a proven record of cost effectiveness, and indoor air research is necessary before policymakers or consumers can make reasonable choices for effective action. We would strongly urge this committee to provide the small additional funds necessary to maintain these cost effective health and safety efforts.

PREPARED STATEMENT

Thank you, again, for the opportunity to present this testimony. Mr. Chairman, I found yesterday that on two pages of our prepared testimony, there were some typographic errors. I would like to submit replacement pages for those two pages if that is proper.

Senator GARN. Certainly.

Mr. FOX. Thank you again.

[The statement follows:]

STATEMENT OF ALAN FOX, LEGISLATIVE REPRESENTATIVE, CONSUMER FEDERATION OF AMERICA

My name is Alan Fox. I am Legislative Representative for the Consumer Federation of America. CFA represents over 200 local, state and national consumer organizations with a combined membership of over 30 million people.

We have asked to testify on funding for both the Consumer Product Safety Commission and the Environmental Protection Agency. I would like to start with some some general comments on funding for the CPSC, and then conclude with comments about indoor air pollution research which affect both the CPSC and the EPA.

We find the Administration's CPSC funding proposal to be extremely short-sighted. The CPSC is probably the taxpayers' best bargain. It has been an effective and economically efficient agency -- measured by lives saved, injuries prevented, and cost-effectiveness.

The cuts proposed for the CPSC's funding, on top of cuts in previous years, will impair the agency's effectiveness. That is an important issue because more than 20,000 people lose their lives, and more than three million suffer disabling injuries every year, due to household accidents. The CPSC is the federal agency with primary responsibility for saving the lives of and preventing injuries to these victims.

In its short history, with limited budgets, the Commission has done a remarkable job promoting consumer product safety. In 1983, CFA concluded in a major study of the CPSC that the death rate due to household accidents fell twice as much in the nine years after the CPSC began as it did in the preceding nine years, and that the rate of disabling injuries fell nearly three times as much in the nine years after the CPSC began as in the preceding nine years.

We have recently updated those figures, and they continue to show the CPSC's effectiveness. Those tables are included as an appendix to this testimony. They show that there have been 6.4 million fewer deaths and disabling injuries in household accidents in the time the CPSC has been in operation. As a result, consumers, businesses, and the government have saved $21.2 billion in reduced health care costs -- or about 40 times the cost of the CPSC for the entire time it has been in operation. I doubt that any other federal agency can match that record.

Furthermore, the public supports the work of the CPSC. This was clearly shown in the 1983 "Consumerism" survey conducted by Louis Harris. He found that the CPSC is the only federal agency the public strongly supports, and that there is strong support for consumer safety regulation. 48% of those surveyed said the government has not done enough to regulate dangerous products, and only 12% said the government had gone too far.

In this context, the Administration's request for $33.7 million is irresponsible. That figure represents a 10% cut from this year's funding, and a 53% cut, in constant dollars, from the CPSC's first budget in 1974.

As a result of these cuts, many areas of great need will be either ignored or not adequately addressed by the only agency equipped and empowered to deal with them. The list of projects which have already been cut because of budget limitations is long. They include reducing child drownings and diving accidents in swimming pools; correcting the explosion risk from damaged flexible connectors in gas appliances; determining why some circuit breakers fail and thus cause fires and electrocutions; minimizing the burns caused by electric deep-fat fryers; and averting tragedies caused by unyielding automatic garage doors.

Whatever fat there might have been in the CPSC budget was cut away long ago. Since 1981, the cuts have come out of muscle. It is time to put an end to the slow but deliberate amputation of the CPSC. Further cuts will cost lives, cause avoidable injuries, and add to the health care costs this country bears. At the very least, Congress should provide an increase from this year's appropriation to allow the CPSC to keep pace with inflation. That won't rescue all of the above projects from the cutting room floor. It will be a start, and it will signal Congress' intent to keep this most effective agency on the job.

In addition to the hazards we have already listed, the CPSC's ability to investigate indoor air pollution hazards has been severely limited. CFA has designated indoor air pollution as our highest priority safety and health issue. Indoor air pollutants cause millions of illnesses every year, illnesses which cost lives and which cost our economy tens of billions of dollars every year in health care costs and lost income. We face a public health problem which, if it had a single cause or a single set of symptoms, would be considered an epidemic of major proportions, calling forth the full resources of our public health system in a search for causes and cures.

How serious a problem is indoor air pollution? A study commissioned by the CPSC of 40 typical homes found from 20 to 150 hazardous chemicals in each home, at concentrations from 10 to 45 times greater than outdoor concentrations. Add to those figures the fact that we spend seven to nine times as much time indoors as we do outdoors, and you have the outline of a very dangerous situation.

There is much more we need to learn in order to make some intelligent policy choices. There is an enormous amount of research needed, and needed soon.

Yet despite this urgent need for more research, the Administration's commitment to indoor air quality has melted to almost nothing. The CPSC slashed its budget request for indoor air quality from $1.2 million in Fiscal Year 1984 to just $600,000 in FY 1986. The Environmental Protection Agency, which in the past two years has received $2 million a year for indoor air research, has had its indoor air pollution research funding eliminated from this year's budget.

The Consumer Federation of America is today presenting this subcommittee with a preliminary version of Indoor Air Pollution: A Program for Action. This document was compiled with the assistance of the top scientists working on indoor air research and the staffs of state and federal agencies with jurisdiction over indoor air quality problems. We have prepared copies of the full report for the members and staff of this committee, and I ask that the introduction to the report be included as a part of the record of this hearing.

The largest and most immediate need identified by this report is funding for research. We have identified over $50 million in research projects which should be undertaken in the next several years. And this compilation is not yet complete. The presence or absence in this document of estimated costs for research needed into various aspects of indoor air pollution does not imply anything about priorities. As we obtain additional figures, we will supply them to the subcommittee.

The CPSC is the only agency that can deal with indoor air pollution caused by emissions from consumer products. Among the research items we've identified as needed are several which fall under the CPSC's authority, including emissions of several organic chemicals from solvents, paint, household cleaners, mothballs and dyes; growth of biologically active materials such as viruses in humidifiers, shower heads, and forced air cooling/heating systems; and pollution generated by a wide variety of heating equipment.

Chronic, long-term problems caused by exposure to indoor air pollutants are as important as dealing with acute problems. The CPSC should not be placed in the position of limiting its focus to band aid treatments of these issues.

While additional research is the highest priority, several other steps should be taken at the same time to allow policymakers, researchers and consumers to use the research effectively. These steps are identified in A Program for Action, and include proposals for disseminating research findings to consumers and for involving private researchers and the public in air quality planning and coordination.

We urge this subcommittee to take action to speed up the processes of research, coordination and information dissemination. In addition to fully funding CPSC research, this committee can act through the EPA's FY 1986 appropriation. We recognize that it is unrealistic to expect approval of the full amount needed to meet the identified research needs, even though that research will be spread out over several years. Nevertheless, it is possible to begin to make indoor air quality research a greater priority, and we urge you to take steps which will do just that.

CFA recommends that the EPA appropriation include funds for each of the following provisions:

1) Multipollutant Field Survey. Congress should appropriate funds for a National Multipollutant Field Survey, to be coordinated and planned immediately by the agencies which are members of the Interagency Committee on Indoor Air Quality (CIAQ), including EPA and the CPSC. This survey should be conducted beginning not later than FY 87.

The urgent need for a Multipollutant Field Study has been cited by private researchers, businesses, public interest organizations, and government agencies. The CIAQ said in its recent indoor air strategy document that such a survey is "necessary to identify and focus CIAQ research efforts, to control indoor air pollution and to assess the impact of future energy conservation."

The Multipollutant Field Survey will take three to five years to conduct, at a total cost estimated at $12 million. We strongly urge this subcommittee to again propose funding for this critical step.

2) Other EPA Research. In the last Congress, HR 5713, the HUD-Independent Agencies appropriations bill, included an EPA indoor air appropriation of $2 million. We believe that the research needs we have documented can no longer be postponed. We urge funding for research other than the Multipollutant Field Suvey of at least $4 million a year.

3) Consumer Information. CFA believes Congress should budget, authorize and fund an Information Clearinghouse on Indoor Air Pollution, through the CIAQ. The Clearinghouse would provide information to the public and to local, state and national agencies -- public and private -- which respond to consumer questions about indoor air quality problems.

The Clearinghouse should be fully operational by FY 87, at an annual estimated cost of $1 million.

4) Public Participation. Congress should require CIAQ to establish a Public Advisory Committee consisting of representatives from citizen groups, state agencies, private industry and the research community. The Advisory Committee would provide improved opportunities for communication between the CIAQ and interested public and private sector parties regarding the agencies' research priorities, research findings and public information efforts.

In summary, CFA believes the EPA's appropriation for indoor air pollution research must be expanded, not eliminated. We believe a case can be made for a substantial effort, but recognize that such an effort is not likely to be approved.

There are, however three clear priorities -- maintaining an adequate level of research, a multipollutant field study, and a public information clearinghouse -- which are necessary and which we call on this subcommittee to include in the EPA appropriation.

We have concentrated our testimony today on areas where we believe relatively small amounts of public spending has and will continue to return dividends to consumers and directly to the federal government in reduced health care costs. The CPSC has a proven record of cost-effectiveness. Indoor air research is necessary before policymakers or consumers can make reasonable choices for effective action. We strongly urge this committee to provide the small additional funds necessary to maintain these cost-effective health and safety efforts.

TABLE I

NATIONAL HOUSEHOLD DEATH AND DISABLING INJURY STATISTICS BEFORE AND AFTER CONGRESS ESTABLISHED THE CPSC, 1964-1983

BEFORE THE CPSC

	DEATHS			DISABLING INJURIES		
	Number	Per 100,000 population	% rate of change	Number	Per 100,000 population	% rate of change
1964	28,000	14.6	--	4.3	2241	--
1965	28,500	14.7	+ .7	4.2	2161	-3.7
1966	29,500	15.1	+2.7	4.4	2238	+3.6
1967	29,000	14.7	-2.6	4.3	2164	-3.3
1968	28,000	14.0	-4.8	4.3	2143	-1.0
1969	27,500	13.7	-2.1	4.1	2023	-5.6
1970	27,000	13.2	-3.6	4.0	1950	-3.6
1971	26,500	12.9	-2.3	4.2	2022	+3.7
1972	26,500	12.7	-1.6	4.2	2001	-1.0
AVERAGE ANNUAL CHANGE			-1.6			-1.3

AFTER THE CPSC

	DEATHS			DISABLING INJURIES		
	Number	Per 100,000 population	% rate of change	Number	Per 100,000 population	% rate of change
1973	26,500	12.6	--	4.1	1935	--
974	26,000	12.3	-2.4	4.0	1870	-3.4
975	25,000	11.7	-4.9	4.0	1852	-1.0
1976	24,000	11.2	-4.3	3.7	1697	-8.4
1977	23,200	10.7	-4.5	3.6	1635	-3.7
1978	22,800	10.4	-2.8	3.5	1572	-3.9
1979	22,000	10.0	-3.8	3.3	1466	-6.7
1980	23,000	10.1	+1.0	3.4	1493	+1.8
1981	21,000	9.2	-8.9	3.2	1393	-6.7
1982	21,000	9.0	-2.2	3.2	1379	-1.0
1983	20,000	8.5	-5.6	3.0	1281	-7.1
AVERAGE ANNUAL CHANGE			-3.3			-3.4

Percentage rates of change are per 100,000 population

SOURCES: Home death and injury data are from Accident Facts, published annually by the National Safety Council. Population data are from annual editions of the Economic Report of the President.

TABLE II
6.4 MILLION FEWER HOUSEHOLD DEATHS AND DISABLING INJURIES, $21.2 BILLION SAVED, SINCE CONGRESS ESTABLISHED THE CPSC

	DEATHS				DISABLING INJURIES			
	Projected per 100,000	Number	Actual	Saved	Projected per 100,000	Number	Actual (millions)	Saved
1973	12.5	26,500	26,500	--	1975	4.2	4.1	.1
1974	12.3	26,300	26,000	300	1949	4.2	4.0	.2
1975	12.1	26,100	25,000	1,100	1924	4.2	4.0	.2
1976	11.9	25,900	24,000	1,900	1899	4.1	3.7	.4
1977	11.7	25,800	23,200	2,600	1874	4.1	3.6	.5
1978	11.5	25,600	22,800	2,800	1850	4.1	3.5	.6
1979	11.3	25,400	22,000	3,400	1826	4.1	3.3	.8
1980	11.2	25,500	23,000	2,500	1802	4.1	3.4	.7
1981	11.0	25,300	21,000	4,300	1779	4.1	3.2	.9
1982	10.8	25,100	21,000	4,100	1756	4.1	3.2	.9
1983	10.6	24,800	20,000	4,800	1733	4.1	3.0	1.1
TOTAL REDUCTIONS				27,800				6.4

ESTIMATED COST SAVINGS TO CONSUMERS (IN 1983 DOLLARS): $21.2 BILLION

The chart gives the total reduction in household deaths and disabling injuries since Congress created the CPSC. The projected number of deaths or disabling injuries per 100,000 population assume that the annual rate of decrease of those figures for the years 1964-1972 continued (1.6% annual decrease in deaths, 1.3% annual decrease in injuries, per 100,000 population; see Table I). The reductions per year are the difference between the projected figure and the actual number of deaths or disabling injuries in each post-CPSC year. The cost savings are based on figures published by the National Safety Council.

INDOOR AIR POLLUTION:

A PROGRAM FOR ACTION

Introduction

Indoor air pollution is the number one hidden health hazard in the home. Most Americans are exposed to higher concentrations of air pollution for longer periods of time inside buildings than outdoors. Evidence is mounting that this exposure contributes to millions of illnesses costing consumers, businesses, taxpayers and the government tens of billions of dollars annually in health care costs and lost work time.

In the past, Congress has appropriated less than $4 million a year to study and remedy this problem, while as much as $250 million a year has been spent on outdoor air pollution. Even this limited support seems to be in jeopardy. The Consumer Product Safety Commission slashed its budget request for indoor air quality from $1.2 million in FY 1984 to $0.6 million in FY 1986. The Environmental Protection Agency, which has sponsored more indoor air pollution research than any other federal agency, proposed elimination of all funding for research or remedies in its 1986 budget request.

The purpose of this document is to present a program for indoor air pollution research and control. CFA consulted with researchers in both the public and private sectors to compile a comprehensive list of the steps needed to define and ameliorate this threat to public health. The preliminary compilation included here identifies over $50 million in necessary research alone. We expect to add to this list as those with technical expertise identify other needed projects. No attempt has been made at this point to estimate the costs of solutions future research may suggest.

Magnitude of the Problem

The precise magnitude of the indoor air pollution problem is not known. But enough is known about some specific elements of the problem to justify serious concern. Among the findings already in:

*A study commissioned by the Consumer Product Safety Commission of 40 typical homes found from 20 to 150 hazardous chemicals in each home. These chemicals were present in concentrations 10 to 45 times higher than outdoor concentrations.

*Researchers have estimated that indoor exposure to radon progeny causes between 2,000 and 20,000 cases of lung cancer each year. Radon exposure in homes depends on factors such as local soil conditions and construction details -- factors over which consumers have little or no control.

*A number of studies show that exposure of nonsmokers to tobacco smoke increases the risk of lung cancer and acute respiratory disease, particularly among children. One study indicates that children whose parents smoke at home have 30% more lower-respiratory illnesses than children in non-smoking families.

*29 million episodes of disabling illnesses each year are caused by exposure to bacteria, viruses and allergens. Exposure to airborne organisms indoors contributes significantly to these illnesses, which range from minor infections to the deadly Legionnaire's Disease.

*Asbestos is known to cause lung cancer and cancer of the lining of the thoracic and abdominal cavities. Millions of Americans have been exposed to asbestos in buildings ranging from elementary schools to the Pentagon, as well as in homes.

*It is estimated that 20 to 40 million Americans are highly sensitive to low concentrations of formaldehyde. An unknown proportion may become ill with flu-like symptoms.

Energy conservation measures undertaken in the past decade have aggravated these problems. Ten years ago, air in a typical home was replaced by outdoor air once every hour. Now, air is exchanged only once every three hours, and in some especially weather-tight homes, only once every ten hours. As a result, exposure to indoor hazards has increased. The answer to this problem is not to abandon energy conservation programs, but to redouble efforts to solve indoor air problems.

TYPICAL SOURCES AND HEALTH EFFECTS ASSOCIATED WITH INDOOR AIR SUBSTANCES*

Substance	Sources	Potential Health Effects
Carbon Monoxide (CO)	Unvented combustion, cigarettes, outdoor air, attached garage	Irregular heart functions, headaches, asphyxiation
Nitrogen Dioxide (NO_2)	Unvented combustion, outdoor air, attached garage, cigarettes	Lung function impairment, respiratory illness
Nitrogen Oxide (NO)	Unvented combustion, outdoor air, attached garage, cigarettes	Skin, nose, eye irritation
Sulfur Dioxide (SO_2)	Outdoor air, kerosene heaters, attached garage	Highly irritating to skin and eyes, respiratory illness
Formaldehyde	Insulation, product binders, particle board	Highly irritating to skin and eyes, suspected cancer-causing agent
Total suspended Particulates	Fireplace, cigarettes, outdoor air	Allergic reactions, respiratory illness
Hydrocarbons (benzene, ethane, butane, ethylene)	Solvents, paint, glues, pesticides, aerosol sprays	Varies according to compound
Radon	Soil, concrete, well water, gypsum board	Lung cancer
Asbestos	Pipe insulation, shingles, firewalls	Cancer, lung function impairment

*NOTE: The mere presence of a substance is not necessarily cause for alarm. While all substances are known to have potential adverse health effects in human beings, they do so at varying levels of exposure.

Summary of Needed Research

With the help of experts with a wide variety of experience in indoor air pollution research, CFA has identified research needs totaling over $50 million over the next several years, as well as a variety of research proposals for which costs can not now be determined. A coordinated federal effort is needed to undertake this research in the next several years at as rapid a pace as resources allow.

It should be noted that this compilation is not complete. The identification of projects and costs for some areas and not others should not be construed as implying priorities.

Identified research needs listed in this report include:

Individual pollutants		
Radon	$ 6,700,000	
Tobacco Smoke	800,000	
Formaldehyde	*	
Nitrogen Oxides	1,200,000	
Organics	4,552,000	
Carbon Monoxide/Dioxide	700,000	
Biologically Active Materials	172,000	
Asbestos	*	
		$14,124,000+
Pollutant Sources		332,000
Cumulative & Synergistic Effects of Multiple Pollutants		*
Source Control		750,000
Mitigation		14,500,000
Monitoring		300,000
Energy Conservation		9,975,000
Health Effects		*
Surveys		12,000,000
TOTAL IDENTIFIED RESEARCH NEEDS		$51,981,000+

*Research needs identified, but projected costs not available

Summary of Other Needed Action

Most funding in the next few years should support research to assess health hazards and the means of alleviating them. But enough is known today about many hazards to warrant far greater efforts to reduce human exposure, including extensive consumer education and information dissemination.

Steps also need to be taken to organize the research more fully, to encourage public participation in research and other activities, and to reduce known threats to public health. Every delay in beginning this effort subjects consumers to risks to their health which are avoidable and preventable. These steps include:

1) Standards Development. Methods and equipment for investigating indoor air pollution have been borrowed from those used in other circumstances. But standards developed for industrial workplace or outdoor air research will not necessarily be appropriate for indoor air research and control. It is imperative that the federal agencies involved in indoor air research participate in the development of specific standards and methods with private sector researchers.

2) Consumer Information. Available research results must be translated in a way that they are useful for homeowners and building operators. CFA proposes the immediate establishment of an indoor air

quality information clearinghouse to assist in providing information to the public and to local, state, and national agencies -- public and private -- which respond to consumer questions about indoor air quality problems.

3) Public Participation. The Interagency Committee on Indoor Air Quality (CIAQ) has not established a formal mechanism to ensure that all interested parties are heard from as work on indoor air quality progresses. CFA urges establishment of a Public Advisory Committee to the CIAQ to provide for communication between the CIAQ and interested public and private sector parties regarding the agencies' research priorities, research findings, and public information efforts.

4) Regulation. More than a dozen federal agencies have some responsibility for indoor air quality. At this time, it is not clear which agency or agencies should have prime authority to act to address indoor air hazards as they are identified by future research. Congress has some time to sort out the jurisdictional puzzle and assign responsibilities, but it should begin to do so now to ensure that there are no unnecessary delays once the research is more fully developed.

I. RESEARCH

The research catalogued in this document is a preliminary effort to list specific research projects needed on various indoor air pollution topics. CFA expects to add to this list as those with technical expertise identify other needed research. Estimated costs are included where such projections are available, and every effort was made to make these estimates conservative. CFA plans to add and refine cost estimates as more data becomes available.

Neither CFA nor anyone else is in a position to evaluate, endorse or prioritize these proposals. That in itself indicates the nature of the problem. Nevertheless, the proposals are presented to illustrate the broad range of research required and the degree by which resources must be made available in order to fully define and solve indoor air pollution problems.

In no way should this document be construed to be a complete listing of research needs. The fact that projects have been identified for some areas and not others, or that greater detail is available in some areas than in others, is not indicative of the importance or unimportance of a particular pollutant or aspect of the indoor air pollution problem.

A. Individual Pollutants

1. Radon

Some researchers estimate that each year a few thousand, and perhaps as many as a few tens of thousands, of lung cancer deaths are attributable to indoor exposure to radon progeny. Research is still needed to locate areas where there are high concentrations of radon and to develop exposure mitigation techniques. The following are some specific projects on radon which need to be conducted.

a. Geologic/Geographic Assessment of Radon Source Potential : This task requires the development of a method to estimate the radon source potential of soil on a geographic basis using existing or readily available data with soil permeability data. The influence of building construction practices and potential transport mechanisms such as weather should be considered. This three-year task will cost approximately $600,000.

b. Radon Entry: The rate of radon entry into a residence depends on foundation type, construction details, driving forces, and the characteristics of nearby soil such as permeability and radon emanation rate. For this task, intensive experimental studies must be conducted in occupied and controlled residential buildings to delineate the relative importance of various factors in determining entry rates. Work should resolve some of the questions that remain from earlier detailed studies in residences with basements and crawl spaces as well as expand the scope of foundation types to include slab-on-grade. This two-year study will cost approximately $400,000.

c. Soil Characteristics: This task includes the development of techniques for field and laboratory measurement of parameters related to the radon source potential of soils: permeability, flux, diffusivity, and emanation rate. soil samples from houses that previously had been surveyed for indoor radon must be collected and analyzed to determine whether soil parameters correlate with indoor radon levels. In future years, laboratory studies on the effect of soil moisture and temperature on radon emanation and transport must be completed. This three-year task will cost approximately $600,000.

d. Building Design Characteristics: The effect of building design features that are related to energy consumption on indoor radon levels must be assessed. One such effort should investigate the concentrations of radon in earth-sheltered houses compared to nearby houses of conventional design. This five-year project will cost approximately $750,000.

e. Instrumentation Development: In support of these tasks, a moderate effort in instrumentation development and assessment must be completed concurrently. This includes improving the facilities for calibrating alpha scintillation flasks for radon measurement and improving previously designed continuous radon monitors for field use. Also included is design, development, and testing of three generations of economical radon entry location detector prototypes. These instruments would be used to facilitate rapid identification of radon entry sites. This three year project will cost approximately $650,000.

f. Low-Cost Mitigation Techniques: Low-cost mitigation techniques for houses containing excess radon concentration must be developed. This project will cost approximately $600,000.

g. Radon Decay Products: The health risk of radon to humans arises from exposure to the alpha decay of the radioactive radon progeny. There appear to be significant differences, based on dosimetric estimates, between the health effects due to progeny attached to airborne particles and those remaining unattached. This task will continue experimental investigations of the factors affecting the portioning between airborne concentrations of unattached and attached radon progeny. These efforts will be complemented by continued development of a model of radon progeny behavior that will provide further insight into the attachment and deposition processes. This three-year project will cost approximately $600,000.

h. Assessing the Health Impact of Radon Exposure in Residences: Several regions in the United States have been identified that contain houses having excess radon concentrations. Since nearby homes may well have low concentrations, it should be possible now to complete a retrospective study of the health effect of exposure to excess radon concentrations. This five-year study will cost approximately $2.5 million.

2. Tobacco Smoke

Symptoms of exposure to side-stream tobacco smoke include discomfort and irritation to the eyes and mucous membranes. A number of studies show an increased risk of lung cancer and an increased risk of acute respiratory disease, especially among children involuntarily exposed to side-stream tobacco smoke. There are contradictory studies which do not show these effects. A major problem in determining health effects from side stream tobacco smoke is the difficulty of quantifying exposure. More research is needed on this problem.

As with other classes of pollutants, reduced ventilation rates in buildings can lead to increased public exposure to particles from tobacco smoke and other indoor emission sources. Particles can also act as carriers for other pollutants that may themselves have human health implications; radon progeny is one example. Identification of particle constituents or adsorbates will assist in identifying sources of particles as well as provide additional data on their behavior. Research must be done to characterize the dispersal of particle concentrations resulting from tobacco smoke and a variety of indoor sources. Such a four year project will cost approximately $800,000.

3. Formaldehyde

Formaldehyde is released from several types of consumer products including particle board, plywood, insulation and fabrics with formaldehyde resins. It is known to cause irritation and sensitization in humans and nasal cancer in laboratory animals.

There are reports that exposure to formaldehyde has been decreasing, but there is no hard data to confirm this. It appears that manufacturers of building materials have taken steps to reduce the amount of offgassing. The extent to which this is true and the extent to which adverse health effects are reduced should be explored.

The Report of the Consensus Workshop on Formaldehyde contains many recommendations for further research. These suggestions are listed below according to the categories established by the Consensus Workshop. To the extent that these studies have been initiated, they should be continued. Where this research has not begun, it should.

1) Exposure:

Systematic data are needed on the extent and magnitude of occupational exposure to formaldehyde, including representative, industry-wide information about personal exposure.

Systematic data on the variability in concentrations of formaldehyde in indoor air are required to determine the frequency and magnitude of short-term peak exposures. This will require systematic sampling designs, stratified among various categories of houses, with sampling designed to detect both short-term (hourly) and long-term (seasonal) variations. it will also require better standardization of protocols and validation of analytical methods.

2) Epidemiology:

Further case-control and cohort mortality studies are needed, both of industrial and professional workers exposed to formaldehyde and of persons exposed to formaldehyde in mobile and other homes. These studies should include estimates of the degree of exposure to formaldehyde and other chemicals; the analyses should take into account various possible induction times for a formaldehyde effect, as well as possible confounding by smoking habits and alcohol consumption. The possibility that there may be an inverse relation between degree of exposure to formaldehyde and smoking habits should be examined.

Longitudinal studies of the effects (if any) of exposure to formaldehyde gas and particulates on pulmonary function are needed as the data currently available are derived from cross-sectional studies.

3) Carcinogenicity/Histopathology/Genotoxicity:

Formaldehyde-DNA adducts have recently been partially characterized. Also, formaldehyde-induced DNA-protein crosslinks are reported to exist. however, the biological relevance of these formaldehyde-induced DNA lesions has not been ascertained. Future studies should determine whether such adducts preferentially form on single stranded DNA within cells, what repair mechanisms remove such lesions, and whether the DNA lesions are associated with the cytotoxic, mutagenic, and transforming activity of formaldehyde.

Comparative molecular dosimetry studies following formaldehyde inhalation exposure are urgently needed to evaluate the relationship between exposure and dose to target site.

Additional carcinogenicity studies in rats at doses above, below, and between 2 and 14 ppm would be beneficial in better defining the dose-response curve.

Since rodents are obligate nose breathers, comparative toxicity/carcinogenicity studies in primates which have oronasal breathing patterns similar to man would be useful to further validate dosimetry studies as a means of carcinogenic risk assessment.

An animal model for initiation/promotion in the nasal epithelium should be developed.

Since formaldehyde and acetaldehyde are nasal carcinogens, information should be collected on structure-activity relationships of other aldehydes.

4) Immunology/Sensitization/Irritation:

a) Cutaneous. Future studies should include defining the operational criteria for scientific documentation of the diagnosis of allergic contact dermatitis in man; determining the amount of formaldehyde required to induce and elicit the following reactions in man: irritant dermatitis, allergic contact dermatitis, nonimmunologic contact urticaria and contact urticaria; ascertaining the cross reaction pattern in allergic contact dermatitis in animal and man to formaldehyde-related chemicals; utilizing the above information, ascertaining populations susceptible to irritation, allergic contact dermatitis and immunologic and nonimmunologic contact urticaria; determining the relationship in allergic contact dermatitis between the degree of patch test reactivity and intolerance to actual product use.

b) Inhalation. Controlled cohort epidemiological studies of exposed and unexposed persons with particular emphasis on the formulation and application of protocols should be conducted. The application of standardized procedures is recommended.

Clinical studies should use basic protocols for pulmonary function studies and for testing for specific and nonspecific sensitivity. Comparisons of gaseous and particulate materials for provocation test purposes are needed. Prospective comprehensive surveillance studies correlated with formaldehyde exposure measurements should be made, with detailed criteria to document the health hazards.

Sulfur dioxide and O_3 exposure of animals has been shown to promote airway infection to bacterial and viral agents. Similar studies should be conducted with formaldehyde. Appropriate epidemiological studies with acceptable criteria for respiratory infection should be conducted to determine the effects of formaldehyde on respiratory infections in humans.

A larger data base should be established on sensory and irritant thresholds in normal subjects in all age groups including individuals with respiratory tract symptoms

Laboratory studies need to be conducted to search for serological and cellular antibody activity in groups who are or appear to be sensitive to formaldehyde and in particular in the hemodialysis patient population in whom allergic sensitivity to formaldehyde has been reported. This may provide a basis for immunological studies of respiratory tract responses to formaldehyde.

Animal models need to be developed for observations of biological effects of differing formaldehyde exposures and for studies of the mechanisms of formaldehyde irritation and sensitization.

Chemical characterization of formaldehyde products is needed. The behavior of such products in the atmosphere and their biological effects and interrelationships need to be investigated.

5) Structure Activity/Biochemistry/Metabolism:

Information is needed on relationships between ambient formaldehyde levels in air and its concentration at target cells.

Effects of airborne formic acid should be studied to see whether it may be responsible for formaldehyde effects.

Information is required on penetration, transport and tissue distribution of inhaled gaseous formaldehyde and the time course of formaldehyde concentration in blood and tissues after administration by various routes.

Comparative studies on related aldehydes would be desirable to reveal their toxic effects, metabolism and reactions with macromolecules.

There is a need for human studies and for a model of the human upper respiratory airway system to determine rate constants for absorption, transport, and metabolism. This should include studies of formaldehyde bound to airborne particulates.

Information is needed on degranulation of rough endoplasmic reticulum caused by formaldehyde and its effect on the membrane thiol-disulfide exchange enzymes.

Other questions concern whether chromosome breaks are related to formaldehyde dose; whether formaldehyde induces DNA repair enzymes and mixed function oxidases in nasal epithelium; whether the nasal carcinogen, hexamethylphosphoramide is carcinogenic systemically and whether abnormal dietary fatty acids can so alter membrane structure as to affect cross-linking in glutathione-depleted animals.

It would be desirable to learn whether modification of glutathione concentration affects toxicity of formaldehyde in vivo and in vitro.

6) Reproduction/Teratology:

a) Animal Studies. No adequate reproductive studies exist using inhalation exposure which is the primary route of human exposure. The following studies should also be performed: combine or modify several existing protocols to evaluate reproductive effects; sperm morphology and vaginal cytology; fertility assessment by continuous breeding; evaluate animals at the end of the continuous breeding experiment to seek signs of functional impairment in offspring.

If data from the above experiments indicate reproductive and/or developmental risk, further studies should be performed. Studies should be done to investigate possible differences in the kinetics and metabolism of formaldehyde with differing routes of exposure in experimental animals. These studies should provide data for comparison between animal studies and human exposure data for risk assessment.

b) Epidemiology Studies. There are several possible epidemiologic approaches to studying the relationship between formaldehyde and adverse reproductive outcomes. In one approach, a group of exposed women and a group of unexposed women would be located and adverse reproductive effects sought. Women who might have or had industrial exposures and women who live in house trailers would be reasonable subjects for such a study. If such a study were to be done, every effort should be made to determine whether menstrual irregularity resulted from exposures.

Other reproductive outcomes should be studied. A very large number of subjects will be needed to get a reasonable evaluation on whether exposure causes birth defects or developmental delays. Evaluation of the rate of low birth weights should be feasible.

Paternal exposure could be causing adverse reproductive outcomes. Studies of male workers and controls would evaluate this possibility.

A more practical and cheaper way to seek to identify human reproductive outcomes associated with exposure is to seek histories of exposures where there have been adverse reproductive outcomes. Existing case-control studies of birth defects should be reviewed for evidence of exposure. It would be reasonable to do a case-control study of birth defects specifically seeking relationships with exposure.

7) Behavioral/Neurotoxicity/Psychological Effects:

Effort should be made to identify and to characterize the structure of the radioactive compound found in rat brain after the animals were exposed to ^{14}C-formaldehyde.

Once the structures of the radioactive compounds have been determined, the distribution of these compounds in brain, the effects of these compounds on neurotransmitter receptors, uptake, biosynthetic and degradative enzymes could be systematically studied. Furthermore, the effects of those compounds on animal behavior could be examined.

Long-term experimental exposure to various concentrations of formaldehyde could be carried out on rats and/or rabbits and electroencephalography (EEG) with indwelling electrodes in hippocampal and cortical (occipital) areas could be performed. Spontaneous EEG activity could be analyzed at various time intervals during the exposure and evoked potential studies using flash light stimulus (visual evoked potentials) as well as sound stimulus (brainstem auditory evoked potentials) could and should be applied at various intervals of continuous exposure.

No studies have demonstrated peripheral nervous system effects of formaldehyde. Possible PNS effects could be checked by applying nerve conduction measurements in chronically exposed rats.

Given the fact that a sound, systematic data base describing the impact of formaldehyde on psychological/behavioral functioning is currently nonexistent, considerable research is needed along these lines. The primary emphasis should be placed on long-term, or prolonged exposures to disentangle the potential toxic effects of formaldehyde from the transient, irritative ones, and to simulate the exposure conditions of relevant populations at risk in the environment, such as inhabitants of mobile homes having urea-formaldehyde insulation and individuals experiencing working-life occupational exposures. The emphasis on chronic exposure studies suggests two particular research paradigms: (1) animal studies in which controlled, measured doses of formaldehyde are administered over variable periods of time to assess the effects on select, well-defined behavioral and performance parameters; and (2) field/epidemiological studies in which groups of people undergoing long-range, measurable formaldehyde exposures as part of their daily routine (e.g., medical students, anatomists, plywood/fiberboard workers, mobile home dwellers) are assessed in terms of relevant psychological/behavioral parameters relative to appropriate baseline-exposed cohort samples.

8) Risk Estimation: Long-term follow-up epidemiological studies along with measurements of formaldehyde dosage levels are required. Improved measures of target dose should be developed. Animal bioassays to study tumor rates resulting from short-term or intermittent formaldehyde exposures should be conducted.

4. Nitrogen Oxides

Sources of nitrogen oxides in indoor air include combustion appliances and cigarettes. There is intensive research underway by manufacturers looking for ways to reduce the generation of nitrogen oxides by combustion appliances. Documented adverse health effects appear to be a modest increase in the number of respiratory infections, especially in children. Evidence of harmful effects on adults is less persuasive, and needs further research.

One of the success stories of indoor air quality research is the response of the industry in developing new generation heaters that have lower emissions than their predecessors. However, the building stock contains combustion appliances of an earlier vintage. In order to assess the impact of the pollutants of these devices on the public, a survey of use patterns and emissions rates from actual devices in the field must be completed. This three-year study will cost approximately $1.2 million.

5. Organics

There is substantial research underway to determine what organic chemicals occur in indoor air, the concentrations that are present, and the effects of various levels of exposure, particularly among especially sensitive people. It is known that indoor air concentrations of organic chemicals usually greatly exceed outside concentrations, but most exposures are episodic (while people are engaged in hobbies, for example), rather than continuous. There have been some reports of serious health consequences, but we do not know whether current levels of exposure result in ill effects to the general population. The consequences of exposure to some wood preservatives need further attention from researchers.

The following are some specific examples of research projects which need to be conducted on organics.

a. Butoxyethanol and xylenes: Research needs to be conducted which will review studies addressing butoxyethanol and xylenes, both solvents commonly found in household products and for which there is preliminary evidence of teratogenicity. An objective of this project is the development of a set of consensus criteria for developing risk assessments based on standard guidelines for teratogenicity and reproductive effects. Studies also are needed to investigate segmentized reproductive exposure and solvent release from selected consumer products containing either of these solvents. The data from these studies will identify whether single exposures produce anomalies and, if so, the critical time period during gestation. Simulated exposure studies will define solvent concentrations encountered in use of consumer products. This project will cost approximately $262,000.

b. Light Hydrocarbons: Hydrocarbons are found in many paints, paint thinners, household cleaners and other products in addition to gasoline and other fuels. The finding that long term exposure to gasoline vapors causes cancer in experimental animals is therefore a matter of concern. Thus, the chronic toxicity of the various light hydrocarbon fractions need to be defined and exposure from consumer products evaluated. This project will cost approximately $156,000.

c. Chlorinated Benzenes: People are exposed to chlorinated benzenes mainly through air as a result of the use of consumer products such as household air fresheners, mothballs, and dyes. One type of chlorinated benzene, hexachlorobenzene, produces malignant tumors and has been classified as "a probable human carcinogen." There is also some evidence that dichlorobenzene causes chronic lymphoid leukemia, anemia, and bone marrow cancer. Laboratory studies and mathematical modeling need to be conducted to assess exposure to a number of chlorinated benzenes. This project will cost approximately $124,000.

d. Toluene: Toluene is a widely used solvent in paints, lacquers and resins. Preliminary indications of the carcinogenic nature of toluene require an understanding of its use in consumer products and probable exposure of consumers to toluene from toluene-containing products. Since general consumer exposure is believed to be associated with periodic use of selected solvent-containing products, exposure experiments under controlled laboratory conditions are necessary to obtain data required for modeling studies. This project will cost approximately $160,000.

e. Building Material Emissions in Large Chamber: This study will use complete assemblies of building materials to examine effects of ventilation, aging, temperature, and relative humidity. Results will be compared with results of small chamber emission measurements. Model development will be included. This two-year study will cost approximately $600,000.

f. Near Real-Time Field Sampling System: Incorporate field sampling system into a mobile van. This task includes fabrication of a system including sample concentrator/thermal desorber and GC/MS plus associate equipment. This system will cost approximately $400,000.

g. Correlation Study of Building Material Emissions and Field Sampling: Materials will be selected from a site under construction. Small chamber emission test results will be compared with the building as constructed. Models will be developed and aging effects on organic concentrations will be studied. This project will last two years and cost approximately $500,000.

h. Study Interaction Ventilation and Organics Concentration in Large Buildings: Use mobile lab; modify vent system operation and determine effect; monitor time of vent system operation and air flows; temperature settings and effect. (Could couple with ventilation efficiency study.) This two-year study will cost approximately $900,000.

i. Temporal Study of Sick Buildings: Use health questionnaire and air sampling and ventilation measurements. Follow these systems through time and correlate. Measure CO_2 ventilation rates in sick buildings and control buildings and correlate with health. This three-year project will cost approximately $700,000.

j. Develop and Validate Model for Organics Emissions/Ventilation/ Concentration in Large Buildings (see h. above). Includes validation and extension of model and field studies. This project will take two years and cost approximately $750,000.

6. Carbon Monoxide/Dioxide

Exposure to carbon monoxide (from an attached garage or a malfunctioning furnace, for example) is an occasional problem, the adverse health consequences of which are well understood.

One specific research need is the development of inexpensive instrumentation for carbon monoxide and carbon dioxide. Passive samplers for each pollutant should be developed and validated in the field. This two year effort will cost approximately $700,000.

7. Biologically Active Materials

Biologically active materials in indoor air include viruses and other pathogenic organisms and fungi. Their concentration appears to be influenced by weatherization. Sometimes, ventilation systems permit the growth of pathogens and fungi and can even spread them throughout indoor space. Further research is needed to better understand health consequences associated with these organisms.

Because many airborne pathogens grow (or are produced by organisms that grow) in water or moist environments, exposure can be caused by the use of humidifiers, cold mist vaporizers, shower heads and forced air heating/cooling systems. Asthma, hypersensitivity, pneumonitis or pulmonary infections can result. Exposure to airborne organisms indoors contributes to the estimated 29 million episodes of disabling illnesses reported each year in the U.S. from exposure to bacteria, viruses and allergens. The above listed consumer products need to be evaluated to determine the factors of release of allergens and pathogens. There also is a need to develop control and remedial measures and to evaluate the results of existing and ongoing studies to determine additional research needs in this area. These studies will cost approximately $172,000.

8. Asbestos

Asbestos is found in consumer products and many buildings, including homes, schools, offices and apartment buildings. Asbestos fibers may be released from insulation and other building materials during installation or when the surface is disturbed by deterioration, renovation, or other human activities. Asbestos is known to cause lung cancer and mesothelioma (cancer of the lining of the thoracic and abdominal cavities).

There is considerable asbestos research underway, particularly with regard to mitigation techniques. This research must be continued. Also, more research on asbestos hazard assessment is needed.

Because the asbestos problem is being addressed separately by Congress, EPA, OSHA and other agencies, we have not included specific research projects in this report. We might say, paranthetically, that the attention given to this one indoor air pollutant demonstrates how comprehensive any research program must be if all major pollutants are to be properly studied.

B. Pollutant Sources

While many pollutant sources have been identified, research efforts need to be continued to identify and quantify new sources, particularly indoor allergens and organic compounds. Efforts to quantify sources and pathways of combustion products, radon and formaldehyde also must be expanded.

Examples of specific projects on pollutant sources include:

a. Pollution Generation from Catalytic Heaters: The products of combustion (CO, CO_2, SO_2, NO, NO_2, polycyclic aromatic hydrocarbons, and fine particulates) have been shown to cause acute and chronic health effects. Pollutants accumulate in homes when supplementary heat sources combust kerosene, natural gas, LP gas, wood or coal. There is a need to gather data regarding the pollutant generation from catalytic heaters. This research will allow information to be given to consumers on the relative safety of these combustion devices used for supplementary heating. This project will cost approximately $188,000.

b. Urethane Toxicity: Polyurethane foams are formulated from either toluene di-isocyanate (TDI) or methylene disphenyl di-isocyanate (MDI). TDI is both carcinogenic and mutagenic. MDI has not been tested for carcinogenicity but it is metabolized to methylene dianiline, a known carcinogen. TDI and MDI are also irritants and sensitizers. While past studies have shown that TDI and MDI are present in test foams, it is not known whether these substances are released. Polyurethane foams are used in insulation and furniture. Additionally, urethane coatings may also contain significant amounts of TDI. Thus, research is needed to investigate the offgassing of MDI and TDI from polyurethane foam and coatings. Consumer exposure must be assessed and health risks estimated. This project will cost approximately $144,000.

C. Cumulative and Synergistic Effects of Multiple Pollutants

While research in the past several years has included examinations of several of the individual pollutants, very little has been done thus far to examine the cumulative and synergistic effects of multiple pollutants. Because consumers generally are exposed to more than one, if not several, pollutants, this research is essential in determining true exposure levels. Cumulative health effects of lower levels of exposure should be examined. Additionally, synergistic effects, such as the conversion of nitrogen oxide to nitrogen dioxide, need further study.

D. Source Control

As more is learned about the chemical and physical characteristics of pollutant sources and pollutants that exist in indoor environments, research must focus on efforts to control individual pollutants. Examples of research needed on source control include the study of the interactions between nitrogen dioxide and materials, and studies on the inhibition of formaldehyde release from materials. This research will take four years and cost approximately $750,000.

E. Mitigation

There is a need for a coordinated mitigation delivery system progressing from basic research through an applied research program to the development of accepted test methods and practical mitigation strategies. The products of research need to be of practical use to designers, builders, operating engineers, product manufacturers, testing labs, regulators, academia and building occupants.

Examples of specific research projects on mitigation which need to be conducted include the following:

1. Ventilation of Office Buildings: Maintaining acceptable indoor air quality in large, mechanically-ventilated buildings with minimal energy cost requires improvements in the distribution of outside air by ventilation systems and improvements in the efficiency of pollutant removal by ventilation. The techniques currently available to evaluate ventilation system performance in large buildings are either inadequate or are very expensive. Thus, it is necessary to develop a more convenient technique to measure ventilation rates and air distribution patterns. Substantial data on ventilation rates and local ages of air (indicating distribution patterns) must be collected from a number of commercial buildings in order to establish a baseline of experience for commercial buildings. This three year study will cost approximately $1 million.

2. Reducing Concentrations in Homes: Considering existing awareness of pollutant concentrations that occur in residences and the

factors that contribute to or control concentrations, the objective of this work is to begin explicitly to apply this growing knowledge to the problem of reducing concentrations in homes where they are excessive. Collaborative mitigation efforts should be primarily analytical, applying increasing scientific knowledge to the design of pilot mitigation programs that would effectively test how a range of approaches might be useful for reducing excessive concentrations. The projects must then be critically examined to determine the degree to which results could be generalized for use in large-scale efforts, e.g., to reduce radon entry rates in the million homes now estimated to need attention. This five year effort will cost approximately $1.5 million.

3. Smart Ventilation Systems in Large Buildings: Large buildings cannot rely on natural ventilation to supply adequate indoor air quality, and therefore require substantial mechanical systems whose associate costs can be quite large. This project will develop techniques for optimizing the mechanical ventilation system to deliver required ventilation where it is needed, when it is needed, and in the correct amount by using smart sensor and control techniques coupled with modern IVIAQ technology. This five year project will cost approximately $2 million.

4. Ventilation in Warm Climates: Infiltration in single-family homes is reasonably well understood for severe (i.e. cold) climates, but the most critical periods for indoor air quality under natural ventilation are the periods of low driving forces characteristic of warmer climates. In these relatively mild climates it is important to understand weather distribution and frequency and the relationship of ventilation to thermal comfort. This project will investigate basic processes that characterize infiltration in mild climates, monitor ventilation distribution in occupied houses, develop passive strategies for using natural ventilation to assure adequate indoor air quality and for reducing cooling loads. This three year project will cost approximately $2 million.

5. Air Flow in Multifamily Buildings: Because multifamily buildings are usually naturally ventilated and contain many interacting zones, they are more complex and offer greater opportunity than their

single-family counterparts. This project will be able to build on the existing single-zone body of knowledge, but would require effort in all research areas: model development, instrumentation development, theory, experiment, etc. The culmination of this project will be a national characterization of the multifamily stock. This six year project will cost approximately $5 million.

6. Ventilation and Air Distribution: The most common type of distribution system in U.S. homes is warm air. This kind of system has significant impacts on interzone air movement, mixing, and pollutant and heat transport, as well as distribution losses. This project will examine the impact of the distribution system on zonal air flow and determine guidelines for the use of individual systems and the choice of systems. Methods for retrofitting distribution systems will also be investigated. This five year project will cost approximately $3 million.

F. Monitoring

In order to determine levels of various pollutants in the indoor environment, effective measurement techniques must be developed. (see also page 28, Standards Development)

An example of one monitoring research need is the development of simplified measurement techniques. Various strategies must be investigated to determine the effectiveness of passive tracer gas sources and samplers for the study of ventilation of commercial buildings. Initial field trials of the strategies must be conducted together with the field studies involving the use of automatic grab sampler for freon. In addition, a continuing effort should be devoted to the identification of novel tracer techniques that permit local ages of air (i.e., air distribution patterns) to be determined from instantaneous or time-integrated measurements of tracer gas concentration. The goal of this effort is to develop measurement techniques that are more convenient and less expensive than the techniques currently available which require concentration to be measured as a function of time. The approximate cost of this project is $300,000.

The CIAQ has identified the following monitoring research needs:

1) Methods Development and Field Testing: Develop monitoring instrumentation, both active and passive, for volatile organic

pollutants, allergens, microorganisms, particulates, and NO_2.

Refine, field test, and transfer to the commercial market instrumentation for CO and all of the above.

Develop survey questionnaires and protocols.

2) Quality Assurance: Develop quality assurance programs similar to that in place for radon for the important chemical and biological pollutants, to assure that exposure measurements made by various laboratories in the United States and elsewhere are comparable.

G. Energy Conservation

As insulation, storm windows, weatherstripping, caulking and other energy conservation measures are taken, the air exchange rate in a house or other building decreases and indoor pollutants are trapped in. Research has started and must be continued to determine the interrelationship between energy conservation and indoor pollutant concentrations.

Specific research projects which are needed include the following:

1. Residential Exhaust Ventilation with Heat Recovery: A laboratory test system will be set up to evaluate exhaust ventilation system performance under controlled conditions. Laboratory studies will be followed by a field evaluation of exhaust ventilation systems. The expected results of the research are improved system designs, identification of situations where this type of ventilation is advantageous, and, in the long term, reduced energy demands in residential buildings. This project will cost approximately $450,000.

2. Infiltration/System Interactions: The operation of various mechanical systems affects the natural ventilation rate; conversely, mechanical ventilation systems affect the other HVAC processes in a house. Furthermore, the current trend toward mechanical ventilation puts an additional load on the overall building HVAC system, while simultaneously having the potential to act as an energy source. Research is needed to investigate the optimal configuration of the ventilation subsystem in a system-wide context and to produce recommendations for how to best integrate the ventilation system with the rest of the house. This two year project will cost approximately $1 million; it is expected that this work would continue as part of a broader-based effort (e.g. three more years for approximately $3 million to include non-ventilation systems as part of the integration.

3. National Infiltration and Ventilation Test Facility: VIAQ research (both public and private) is hindered by the lack of any top quality facility for testing new methods, new ideas, or potential products. This project will build a fully-instrumented facility that would be capable of making high quality infiltration, ventilation, indoor air quality, and air leakage measurements and simulations. The facility will attract researchers from all over the world and promote excellence. The facility will take two years and approximately $5 million of capital equipment money to build and will require approximately $300,000 per year to operate and maintain.

4. Design Energy-Efficient Clean Buildings: After summarizing work already completed, this project would offer designs for the construction of new energy-efficient, low pollution buildings. This task will take one year at a cost of approximately $75,000.

Additionally, test scale or actual models based on these designs will be constructed. This project will take three years and will cost somewhere between $150,000 and $1 million.

H. Health Effects

There is a need to develop data which makes it possible to rank major sources of pollution in terms of prevalence, severity of health effects and other comparative measures. The Interagency Committee on Indoor Air Quality has identified the following health effects research which needs to be conducted:

-Conduct chronic toxicity studies in laboratory animals

-Study populations particularly sensitive to chemical or microbial indoor air pollutants

-Develop biochemical markers for exposure to pollutants e.g., urinary cotinine for passive tobacco smoke and urinary hydroxylproline for NO_2

-Evaluate the toxicity of low level exposure to particulates and other chemicals both individually and in combinations

-Develop and conduct appropriate epidemiological studies for for indoor pollutants, e.g., radon and formaldehyde

-Utilize more sophisticated approaches to study the health effects of pollutants such as NO_2, CO and formaldehyde

-Evaluate the use of CO_2 in large buildings to predict complaints of tight building/sick building syndrome

I. Surveys

1. National Multipollutant Field Survey

One of the greatest indoor air quality research needs is the collection of data which will provide direction for assessing and controlling the indoor air problem. This need for a National Multipollutant Field Survey is widely recognized by virtually all of the interested parties concerned about indoor air. The CIAQ has summarized the goals and the value of such a survey in the following manner:

> The National Multipollutant Field Survey will provide the data base required to develop hypotheses to determine dose-response relationships. The survey will draw upon the results of previous research, and the survey results will focus future research. The survey will provide an estimate of the range and distribution of indoor exposures to indoor air pollutants, and identify those factors which influence their concentrations. The impact of energy conservation practices, including reduced ventilation rates and use of supplementary heating sources, and the effectiveness of mitigation techniques will be studied. A National Multipollutant Field Survey is necessary to identify and focus indoor air quality research efforts, to control indoor air pollution and to assess the impact of future energy conservation.

2. Health Effects Survey

In addition to the National Multipollutant Field Survey there is a need to obtain health effects data related to indoor air quality. This information could be gathered through surveys directed at specific pollutants or specific population groups. One means of obtaining this needed health effects data may be through the National Center for Health Statistics' National Health and Nutrition Evaluation Survey. Evaluation of this survey and others as a suitable means of collecting health effects data should be an important priority of the CIAQ agencies.

II. Standards Development

In 1981, the National Research Council published a comprehensive report produced by its Committee on Indoor Air Pollutants. The report contained nine recommendations, the second of which is:

> Monitoring protocols and properly designed instruments must be developed to satisfy the special requirements involved in investigating the indoor environment.

These monitoring protocols and their underlying standards are key elements in developing sensible approaches to quantifying the indoor air quality problem.

Currently, standard methods and protocols for air quality investigations do not exist. In general, equipment, methods and protocols derived from ambient air quality monitoring and industrial hygiene are employed, frequently by individuals trained in those disciplines. The absence of protocols to assist investigators in designing monitoring programs and the use instead of methods developed for other purposes often contribute to investigators' lack of success in determining the causes or sources of consumer complaints.

Indoor air quality monitoring can be of little or no practical value where information on the environmental conditions, building operating conditions, building use patterns, and other factors affecting source strength and dilution are not reported in a standardized fashion. The following factors are among those for which standards must be developed or adapted: Thermal environment; relative humidity; air movement; air exchange rates; wind; building characteristics; building occupancy; building maintenance; building mechanical systems.

In March, 1985, ASTM, a voluntary standards organization, will hold meetings to establish task groups to develop consensus standards for many of the above mentioned topics. It is imperative that the government agencies active in the field of indoor air quality participate in these standards development activities. Further, these agencies, as well as those in the private sector, must support other efforts, as they arise, to expand the work on standardized test methods and protocols addressing indoor air pollution.

III. Consumer Information/Technology Transfer

In the past two years, there has been increased public concern over the quality of air both within our homes and in public buildings. State departments of health and citizen groups such as CFA receive numerous calls and letters from homeowners who want information on how to determine whether they have an indoor air pollution problem and what steps they should take.

Unfortunately, it is difficult to answer many of these questions. In some cases, the research has not yet produced the answers we need.

This is one reason we fully support continued research by the CIAQ agencies.

In other cases, however, research results are available but have not been implemented in such a way as to help homeowners and building operators. CFA believes that Congress must assure that consumer information based on adequate research is provided. There are several specific information needs which should be addressed.

First, individual homeowners and building operators need information which will help them evaluate their indoor air quality and assess the need for further action. Questions such as the following should be answered for all pollutants for which this information is available:

> What symptoms and other factors signal a potential indoor air problem?
> What types of monitors should be used to determine concentration levels?
> What do the test results of monitoring mean?
> What remedial steps can be taken?
> Who should be contacted for more information?

This information should be available in several forms (pamphlets, booklets, demonstration programs, video tapes, etc.) since the sophistication of homeowners and building operators varies widely.

Second, agencies and organizations which regularly interact with the public on indoor air quality problems need reliable, specific and practically applicable information based on the current state of knowledge. Because these agencies and groups receive inquiries which pertain to problems currently being researched, they need access to research reports and findings as they become available.

CFA recommends the establishment of an efficient and comprehensive indoor air quality information clearinghouse to assist in providing information to those who respond to the public and to all others doing work related to this issue. The number of federal agencies alone which are studying this problem demands that a coordinated mechanism be established for information collection and dissemination. In addition to the consumer information needs outlined above, such a clearinghouse would provide information on: research that has been subjected to peer review; announcements of new publications; up to date information from the health agencies; information on new standards and regulations; and names of organizations that are part of the indoor air quality network.

Finally, there is a clear need to provide information to the public which will help protect against potential fraud. With an increase in awareness of the indoor air pollution problem, the number of new devices aimed at reducing pollutant concentrations, the number of new inexpensive monitors for all types of pollutants, and the number of experts inspecting and performing remedial work on homes, have all increased dramatically.

Consumers need information on the proper use of devices and equipment. It does a consumer little good to purchase a particle removing device if that consumer's indoor air quality problem is not particles, but something else. Therefore, information is needed which will allow consumers to distinguish when they can use self-help measures and when an expert is required. Further information is then needed in order to evaluate the quality of those devices or an expert's recommendations. The federal government should take a leadership role in facilitating consumer decision making in this complex area.

IV. Public Participation

The Interagency Committee on Indoor Air Quality (CIAQ) has not established a formal mechanism to ensure that all interested parties are heard from as work on indoor air quality progresses. While staff members of the various agencies interact with the public and other organizations in the course of their work, this provides very limited opportunities for the private sector to learn of the coordinated efforts of the CIAQ, and likewise for the CIAQ to hear from those with important information to share. The benefits of interaction have been recognized openly by both the private sector and government representatives.

CFA urges Congress to direct the CIAQ to establish a Public Advisory Committee to the CIAQ. The Public Advisory Committee will allow for structured communication regarding the agencies' research priorities, research findings, and technology transfer programs. The Committee should have the opportunity to meet, at a minimum semi-annually, with the CIAQ Chairs and their staff. The CIAQ also should use the Committee as an informal resource as the agencies face their day-to-day challenges in indoor research.

The Committee should contain representatives from citizen groups, state health departments, affected private industries, building organizations, architects, abatement industries and those conducting private research.

In addition, the CIAQ should seek wider public comment on significant actions it proposes. For example, the CIAQ Strategy Document should be subject to comment as revisions are made each year. Similarly, the individual agencies should be encouraged to seek public input into their indoor air decision-making processes.

V. Regulation

It is difficult at this juncture to make specific recommendations for the regulation of indoor air quality. While there are a few areas (such as formaldehyde, where CFA supports a 0.1 ppm standard), where enough preliminary research has been conducted in order to make public policy decisions, most decisions will be made in the future when research has provided enough of the answers on which to base a decision.

More than a dozen federal agencies have some responsibility for indoor air quality, as demonstrated by the CIAQ membership. Four of these agencies -- CPSC, DOE, EPA and HHS -- serve as CIAQ co-chairs and might be said to have the major responsibilities at the current time.

The fact that indoor air quality crosses several jurisdictional bounds is not necessarily undesirable. But it makes it difficult to determine in any a priori fashion which agency should emerge as the lead agency to regulate indoor air pollutants. A case can be made for all of them, and an independent office may even be appropriate.

The results of the research, as well as the degree of commitment demonstrated by each of the agencies, will help shape the answer to the question of which agency should be given expanded regulatory authority. In the meantime, Congress should insist that each agency carry out its existing responsibilities as effectively and efficiently as possible.

Finally, many aspects of indoor air quality (such as ventilation, use of gas appliances and kerosene heaters, etc.) currently are regulated by state and local building codes. These codes are based on one of the three national model codes. Whatever federal regulation of indoor air eventually emerges, it is highly likely that such regulation would supplement, not replace state and local building codes. Therefore, the existing model codes should be examined closely so that differences on indoor air related provisions can be reviewed and evaluated. As it did with solar energy, the federal government should help assure the development of a sound model code for indoor air by providing modest financial assistance to bring all parties, including consumer interests, together to write such a code.

DIFFICULT DECISIONS TO BE MADE

Senator GARN. We thank you for the testimony in this area. We agree there are large cuts percentagewise in this program, and there are in most of our programs. For several years I have been making the same comments on the floor. This year I haven't bothered to go over, simply because I don't know that it does any good. In our attempts to cut budgets we have continually cut the discretionary program because Congress hasn't had the courage to attack the real problem of the entitlements programs. I think you know how the budget process works. When we finally do get a budget, this subcommittee will be mandated with a total amount of money. Then how we apportion it is up to the subcommittee, the full committee, and eventually the Senate and the House in the conference.

The entitlements always get theirs off the top. Then we have to divide up what is left.

So there are many of the discretionary programs that I would personally like to see more of the funding in, but as an appropriator, we have no control over the entitlements. Whatever figure we are given, that has to come out of that ceiling given us by the Budget Committee.

I have been more frustrated this year listening over there with the unwillingness, because those are much more popular. They have much bigger constituencies when you are giving money directly to individuals, transfer payments. I think anybody who analyzes the budget, without regard to what political party or political philosophy, just look at the numbers, you could only come to one factual conclusion: That is that the entitlements programs that have literally been out of control because they are automatically indexed, and they have criteria that only change by the authorizing committee.

That is the problem each subcommittee faces, is taking that off the top, and in this subcommittee, the veterans, not all, but many of the veterans' programs are entitlements. I am not antiveteran, but those entitlements do come first to us as members of the subcommittee.

So that is the difficulty we face, particularly when you are talking about small agencies, and you aren't talking about very much money, relatively speaking. I mean, $1 million is still a lot to me personally and always will be, but it isn't very much in terms of the total budget. You do face those constraints as far as the allocations that are given to me.

I do not see any solution to the problem of deficits or the crowding out of money for discretionary programs until Congress is willing to have the political courage to do something about the entitlements. We are playing the same games over there on the floor that we have played for years, unfortunately. We are unwilling to do it.

Just like the social security debate that is going on on the floor right now. If you sat there and listened, you would be convinced that we are cutting social security. My own son last night asked me, he said, "Dad, I thought you made a commitment not to cut social security." I said, "Well, let me put it this way. If you were making $5 an hour and asked for $6 and your boss said, 'I can only afford to give you $5.50, to give you a 50 cent raise,' would it be fairer for you to come home and say, 'I got a cut in my pay'? He said, "Of course not. I got an increase, not just as big of one as I wanted."

That is the issue of social security. You should have listened to the debate on the floor. I needed Tums and Pepto-Bismol and a few other things, because it is that simple. Interestingly enough, too, the current law, if inflation dropped 3 percent, there is no cost of living adjustment, so the 2 and 2 we are talking about, if inflation dropped below 3, it would guarantee 2 percent they would otherwise not get. But I certainly haven't heard that discussed or put in the press. Those are the types of decisions we have got to make, or the discretionary programs will continue to get more and more squeezed each year, because the entitlements will go up automatically, the deficits will increase, and when we start to cut, we start looking at all the discretionary programs, because they are the only ones we can get our hands on, either under the Budget Act or politically.

I don't have a solution to that. I used to think that the budget deficit will get so bad that Congress will wake up, but apparently even $200 billion isn't enough to scare them into making some of those choices on entitlements programs.

I thank you very much for your testimony.

Mr. Fox. Thank you, sir.

Environmental Protection Agency

STATEMENT OF MERLE GARCIA, GOVERNOR OF ACOMA TRIBE, NEW MEXICO

Senator Garn. Next, Mr. Merle Garcia.

We are happy to have your testimony. Please proceed.

Mr. Garcia. Thank you, Mr. Chairman.

I will try not to take too much of your time, because there are time limits, and I know there are a lot of people trying to get on and testify.

Senator Garn. We feel badly every year about the limitation of 10 minutes, but there are so many people that want to testify that it is the only way we have found to be able to do it. That is why we have taken the route of making certain that the full statements are placed in the record.

Mr. GARCIA. Thank you, Mr. Chairman.

I appreciate the opportunity given me to testify before this committee. My name is Merle Garcia. I am the governor of Pueblo Acoma in New Mexico. I represent a very traditional tribe coming out of New Mexico, one of the oldest and continuously inhabited villages of North America. There are approximately 3,800 people registered on the Acoma official rolls. I will try to go through this testimony.

Rather than going through page by page, I will probably just cut into certain areas so that I could cover the most important issues that I need to bring before this committee.

At this point, before I go on, I would like to introduce my staff, the lieutenant governor sitting behind me, a council member, and then a consultant to the Acoma Development Authority, Mr. Boltivek.

ACOMA LAKE

Our most pressing problem is unemployment on the reservation, and I made some specific issues in what has happened. Our water supply has been severely damaged, through no fault of the Acoma people. At this time, I am making a specific request of this committee of $4.3 million for the cleanup and restoration of Acoma Lake on our grant lands. The lake itself is one source of generating revenues for the Pueblo, and at this point, we have lost five jobs, and we have lost a revenue of about $100,000 a year since 1982.

Mr. Chairman, I will not go into the specific dollar amount at this time because time does not permit. However, based on studies by both EPA and the Acoma tribe, the dollar amount request is fully justified. I will submit that documentation in the very near future. At this time, I would like to relate the background of how Acoma Lake became an environmental disaster through no fault of the Acoma people. The city of Grants requested lowering of the standard of the Rio San Jose. The Pueblo Acoma was really opposed to the lowering of the standards of the water quality in order to allow Grants to build a sewage treatment plant. I think this is a very, very big mistake that was made, that the issue was not addressed concerning the Acoma people.

Acoma did not, in any way, accept the lowering of those standards. We petitioned the city of Grants, we petitioned the State and the U.S. Environmental Protection Agency in the move that they had taken. Our efforts were not acted upon favorably.

I will not discuss the merits of the lowering of the standards at this time, but it will be instituted in the documentation that I have promised that will be submitted to your committee.

The result of that was a polluted lake that had to be drained in 1982. The damage is very enormous. The agriculture capacity of Acoma land has been severely damaged; the fishery totally lost. I took a loss of probably about $150,000 of fishes that I had to let die because the polluted water did put out fish that were edible; there was nothing wrong with them. They were very healthy, but the taste was very bad, so we were losing people away from the lake.

As history has recorded, American Indians were this country's first environmentalists. We have worked with the land and water resources for centuries.

Yet today, under alleged proection of the Federal Government through EPA and the State government, Indian people are suffering from the destruction of our natural resources, which we were able to preserve on our own through the centuries.

LACK OF EPA PROGRAMS TO ADDRESS PROBLEMS

To date, although the EPA has developed a policy on Indian lands, there are no programs to address the very severe environmental problems occurring on our lands. The Indian reservations are home for some of the poorest population in the country and commonly suffer from unemployment rates exceeding 50 percent. In fact, Acoma's unemployment rate is about 79 percent at this point, Mr. Chairman.

We shouldn't be deprived of the opportunity to protect our environment under the environmental program of this country. What is needed is a more specific focus by EPA on the special and urgent environmental problems on Indian reservations. There has been so little activity by EPA on reservations that there is no perfect way to estimate a suitable amount to invest in an environmental cleanup on Indian lands.

I would like to address that on the environmental issue. Addressing the Acoma Lake will take anywhere from $1.3 million to put in and restore the lake to its capacity where it would generate revenues for the tribe.

We all recognize the environmental problems on the reservations are enormous, but not every type of problem is equally distributed among all reservations. In the absence of earmarked funds to make sense of EPA's Indian policy, Federal actions on our urgent problems is impossible. Accordingly, we specifically request:

FOUR SPECIFIC REQUESTS

One, EPA establish a permanent Indian affairs office, staffed with appropriate personnel for each of EPA's major statutory authorities; two, EPA initiate an assessment of the resource needs to ensure adequate program coverage for Indian lands at the beginning of fiscal year 1986; three, EPA provide financial assistance to tribal governments in the form of technical assistance and creation of pilot projects to provide further support of the tribal environmental programs; and four, most importantly, we request that EPA establish the following in implementing its Indian policy:

(A) set a timeframe for technical assistance pilot projects, et cetera; (B) determination of the costs for tribal programs needs; (C) detailed plans of action; and (D) identification of actual appropriations needed for future years.

Mr. Chairman, as you know, Indian policy is little more than hot air until EPA commits fiscal resources to address the needs and problems on the Indian reservation. If the United States intends to enforce its trust responsibility to protect Indian lands and its environment, it must eliminate the effect of past pollution and prevent future effluent discharge that will damage Indian lands and waters and cause further damage to the ecology of this country.

With the above thoughts and recommendations, I urge your careful consideration and positive actions on this presentation, Mr. Chairman.

Thank you for the opportunity, again.

Senator GARN. Thank you, Governor Garcia. We will look forward to that additional information that you will have for the committee.

Mr. GARCIA. Thank you, sir.

[The statement follows:]

STATEMENT OF MERLE L. GARCIA, GOVERNOR, PUEBLO DE ACOMA, NM

Mr. Chairman, my name is Merle L. Garcia. I am the Governor of the Pueblo de Acoma, New Mexico. I represent a proud and traditional tribe, with a very democratic government structure, that has inhabited the village of Acoma since 600 A.D. Acoma is the longest continuously occupied site in all of North America. This is the first time that the Acoma people have made a request to this Committee.

There are approximately 3,800 people registered on Acoma's official roles, the vast majority of whom live on the Pueblo's grant lands. Our most pressing problem is unemployment. In order to develop our economy and to become more self sufficient, our natural resources must be preserved. Water is one of the most basic of natural resources, and our water supply has been severely damaged through no fault of our own. At this time, I am making a specific request of $1,300,000.00 for the clean-up and restoration of Acomita Lake on our grant lands. The dollar amount should be earmarked as a line item within the FY 1986 Senate appropriation. In the alternative a specific line item should be included under Abatemen, Control and Compliance of the Budget for the Environmental Protection Agency.

I will not go into the specific dollar amount request at this time because time does not permit. However, based on studies by both EPA and the Acoma Tribe, the dollar amount request is fully justified. I will submit that documentation in the very near future.

At this time, I would like to relate the background of how Acomita Lake became an environmental disaster, through no fault of the Acoma people. After providing you with the specifics, I will comment on how this situation is illustrative of a much larger problem of the Indian nations of this country.

The Rio San Jose is a tributary of the legendary Rio Grande in New Mexico, arising along the continental divide and flowing past Grants, New Mexico and through the grant lands of Acoma. These lands and the Rio San Jose water were protected and reserved for Acoma's use and benefit by Spain, Mexico, and the United States. For centuries the Acoma people have used the natural flows of the San Jose for agricultural purposes, for domestic use, for primary contact for religious and recreational purposes, and for maintenance of a fishery in the stream within their lands. In recent times the waters of the stream supported both a fishery and a recreational pool in Acomita Lake, a man-made lake within the grant lands of the Acoma Pueblo.

However, Acomita Lake suffered from pollution when the clean water standards were lowered in order to allow the City of Grants, New Mexico to build a sewage treatment plant. For the record, the Acoma people did not in any way accept the lowering of those standards. We petitioned the City of Grants, we petitioned the State of New Mexico, and we petitioned the U.S. Environmental Protection Agency to protect our water and not lower the water quality of our stream. Our efforts were not acted upon favorably. I will not discuss the merits of the lowering of the standards at this time. The point is that the tribe's inability to regulate its own standards for clean water resulted in a major disaster. The result was a polluted lake that had to be drained. The damage is enormous. The agricultural capacity of Acoma's land has been severely damaged. The fishery is totally destroyed. The established use of the water for domestic purposes and for primary contact for religious and recreational uses has also been destroyed. The result has been substantial economic harm to the Acoma people, including the loss of five jobs and revenues of $100,000 per year. Furthermore, the polluted water has damaged and is destroying the ecology of the Rio San Jose and its environment within the entire Acoma Pueblo.

As history has recorded, American Indians were this country's first environmentalists. We have worked with the land and water resources for centuries. We have managed to balance our economic development and our modest natural resources throughout history. Yet today, under the alleged protection of the federal government through the EPA, and the State government, we, as Indian people, are suffering the destruction of our natural resources which we were able to preserve on our own through the centuries.

To date, although the Environmental Protection Agency has developed a policy on Indian lands, there are no programs to address the very severe environmental problems occurring on our lands. Even though tribal governments and state governments have equal responsibilities for management of land and resources, due to the sovereign nature of tribal governments, Indians have been left out of EPA's programs. The Indian reservations are home for some of the poorest populations in the country, and commonly suffer from unemployment rates exceeding 50%. It is not fair or just that, in addition to suffering the most crushing poverty, tribal governments should be deprived of the tools to protect our environment under the environmental programs of the country.

What is needed is more specific focus by EPA on the special and urgent environmental problems on Indian reservations. I am convinced this can only be achieved by earmarking funds within each EPA program account for tribal governments. There has been so little activity by EPA on reservations that there is no perfect way to estimate a suitable amount to invest in environmental clean up on Indian land. One logical way, however, which has been suggested and which I support, is for the federal government to spend proportionately as much on Indian land for environmental projects as it does on all land. Since Indian reservations constitute approximately 2.6% of the entire land mass of the United States, then it is reasonable to propose initially a 2.6% line item add on for EPA expenditures on Indian reservations. With experience, the amount would be adjusted more specifically in later years as appropriate to insure that Indian lands in fact receive comparable treatment with the rest of the country.

We all recognize that the environmental problems on the reservations are enormous, but not every type of problem is equally distributed among all reservations. Some tribes in New Mexico have problems which are not found on other reservations. However, the problems are pervasive, and strongly deserving of the EPA's immediate attention. In the absence of earmarked funds to make sense of EPA's Indian policy, federal action on our urgent problems is impossible. Accordingly, we specifically request:

1. EPA establish a permanent Indian Affairs Office, staffed with appropriate personnel for each of EPA's major statutory authorities;

2. EPA initiate an assessment of the resource needs to insure adequate program coverage for Indian lands at the beginning of FY 1986.

3. EPA provide financial assistance to tribal governments in the form of technical assistance and creation of pilot projects to provide further support of tribal environmental programs.

4. Most importantly, we request that EPA establish the following in implementing its Indian Policy:

- a set time frame for technical assistance, pilot projects, etc;

- a determination of the costs for tribal program needs;
- a detailed plan of action;
- an identification of actual appropriations needed for future years.

Mr. Chairman, as you know, Indian policy is little more than rhetoric until EPA commits fiscal resources to address the needs and problems on Indian reservations. If the United States intends to enforce its trust responsibility to protect Indian lands and environment, it must eliminate the effect of past pollution and prevent future effluent discharges that will damage Indian lands and water and cause further damage to the ecology of this country.

With the above thoughts and recommendation, I urge your careful consideration and positive action on this presentation.

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

STATEMENT OF CARL A.S. COAN, JR., LEGISLATIVE COUNSEL, NATIONAL HOUSING CONFERENCE

Senator GARN. Is Mr. Carl Coan here? Carl?

There you are.

Mr. COAN. Senator, Cathy warned me I better be here a few minutes early. I'm glad I did now.

Senator GARN. I try very hard to defy all the traditions of the Senate and stay on time.

Mr. COAN. You are doing a very good job.

Mr. Chairman, my name is Carl Coan. I am legislative counsel for the National Housing Conference on whose behalf I would like to thank you for the opportunity to present our views today on the HUD appropriation for fiscal year 1986. I would like to extend the regrets of Floyd Hyde, our president, who unfortunately had to be out of town this week, or he would have been doing this himself, rather than I.

As the oldest national organization concerned with the provision of adequate housing and decent neighborhoods for all Americans, we find the prospects for continued progress toward meeting these goals, as presented in the President's budget proposals, very discouraging. In fact, one can almost typify the administration's 1986 appropriations bill for HUD as an unappropriation, because the results that are likely to ensue from its adoption will be the undoing of 50 years of effort by the Federal Government to progressively meet the Nation's housing needs.

INADEQUACY OF REQUESTED HUD FUNDING

The National Housing Conference, at its 53d annual convention just 1 month ago, considered the administration's proposals for fiscal year 1986 and rejected them as efforts to turn back the clock. In its resolutions, the NHC pointed out that this administration had made similar proposals over the past several years to eliminate most low-income assistance for low- and moderate-income housing. These proposals have been rejected in the Congress. And this subcommittee has been one of those rejectors, and we have been most appreciative of that, which has continued to appropriate modest sums for housing programs.

While these modest program levels have frequently been nothing more than tokens compared to the need, though as I said appreciated, the administration would now end even those token efforts. These budget proposals are irresponsible, if one accepts, as a bipartisan majority of the Congress has over the past 50 years, the proposition that the Federal Government does have a role to play in assuring that its citizens are able to obtain decent shelter that they can afford.

In rejecting the administration's proposals, the National Housing Council in its resolutions adopted a series of proposals which we believe are the minimum necessary to be funded in the coming year if we as a nation are to meet our responsibilities to all our citizens. I have attached to my statement a copy of our full set of resolutions, which I urge you to review. I should like now, however, to highlight some of the principal recommendations contained in those resolutions.

The Public Housing Program, we believe, should be continued with appropriations for at least 20,000 additional units; funding of the modernization at a $2 billion level, and the provision of adequate operating subsidies and the provision of only those funds needed to support Treasury financing of both existing and prospective public housing notes until the problems of the present Tax Code are resolved, not the almost $15 billion buyout proposed by the administration.

We urge full funding of the Community Development Block Grant Program, without the shift going into nonmetro areas to make up for the farmers loan conditions.

Continuation of the UDAG Program at the same level as last year.

FARMERS HOME ADMINISTRATION

We don't believe any funds should be provided, as I mentioned before, for switching Farmers Home programs to HUD. These programs are uniquely rural oriented and uniquely within the competence of the Farmers Home Administration, and it would be a mistake, a serious mistake, we believe, to leave it to HUD to carry on those responsibilities.

SPECIFIC HOUSING NEEDS

We call for the continuation of housing assistance for Indians and Native Americans and full funding for the infrastructure, such as sanitary facilities, needed to support that housing.

We also urge suffcient funding for the production of at least 150,000 units of low- and moderate-income housing for families, for elderly, and handicapped, including a continuation of the 202 Housing Program and the Housing Development Grant Programs, if necessary, Mr. Chairman, section 8, if no other means can be found to reach the families that are served by that program.

We call for continuation of section 8 existing, while we have not much faith in the Voucher Program, at least until it is shown to be a good replacement for those programs.

We call for a continuation of the 235 Program at the level of 50,000 units. I think that that program can be a very useful tool. It needs some things done, such as a higher number of mortgage lenders, which, once that were done, we think that would go very well.

We call for the appropriation of $60 million for housing for the homeless authorized in the Housing and Urban-Rural Recovery Act of 1983 and no increase in user fees presently imposed under the various FMA, VA, and GNMA programs.

There is no question these recommendations will entail a commitment of funding significantly above those proposed for 1986 by the administration. Houses cannot be built or maintained for nothing. Nor can urban or rural communities be made better places to live without the expenditure of money.

FEDERAL DEFICIT

The Federal Government confronts, and has been confronted in the last 6 fiscal years, with a massive deficit, but that deficit is not the fault of the tens of thousands of low-income families who are waiting for housing authority.

Mr. Chairman, I am on the Fairfax County Regional Housing Authority and have been for the last 10 years. I was chairman for at least the past 2 years. We have a waiting list in excess of 4,000. We have shut it down. We have no housing to supply those people. Nor is that deficit the fault of the unemployed person who stands the chance of paying his or her own way as a result of obtaining a job from the UDAG-assisted development in a distressed community.

The housing programs of HUD have been cut by two-thirds since 1981, and yet the deficit has continued to grow. HUD's Community Development Programs have remained static over that time, but the deficit has continued to grow. If the reduction of the deficit is the primary reason for these further devastating cuts, one has to wonder why the administration has proposed, in conjunction with its 1986 budget, to spend almost $15 billion, $15 billion in fiscal year 1985 to buy out most of the loans presently financing public housing.

We are told this is necessary because of problems brought about by problems in the Tax Reform Act of 1984. Yes, there are problems, but not unsurmountable ones, if one is desirous of remedying the problem. No serious efforts were made by the administration to remedy a problem brought on by legislation it asked for, and probably asked for at Treasury.

For some reason, the administration is willing to withstand a $15 billion increase in outlays in 1985 rather than proposing a simple statutory resolution, if even that is necessary. Could it be that deficits are not the real concern to be addressed insofar as the housing and community development programs of HUD are concerned, but really a disguise to facilitate the termination of these programs? Perhaps even a $15 billion increase in the deficit for 1985 is looked upon as a means of making things look better in 1986, when that outlay will no longer be necessary.

We urge the subcommittee to continue a Federal role in assuring that our citizens have an opportunity to be adequately housed in decent communities. You have recognized this responsibility in the past, and we urge you to continue to recognize it.

Mr. Chairman, on the issue of public housing and that situation, that is an issue that could have been resolved last summer very quickly if Treasury wanted to resolve it. They don't want to. It just seems, it just boggles my mind that we would spend $15 billion to increase the deficit by that much in order to carry out this Treasury goal. This committee and the other committee of which you are a Chair has rejected efforts over the past several years by OMB and Treasury, with HUD in front, but only really doing that which it has been asked to do, to try to change the funding mechanism for public housing. It is the most inexpensive means of funding, and it really should be continued.

Thank you.

Senator GARN. Where do we balance the budget, Carl? I haven't had any testimony from anybody, and don't misunderstand me. We have known each other for a long time, and you know my attitudes on housing as well as anybody. So we don't need to go into that. But I don't have any testimony from anybody that doesn't think their program should be increased. I can dump it all on Congress. We are ultimately the only one under the Constitution that ever spends money. What would you do if you were in my position, not just as chairman of this subcommittee, but as a Senator? You get to the floor, where somebody is making the same very good plea for their program and yet they all say, "I'm for a balanced budget"? It ain't going to work that way.

So where?

Mr. COAN. I think we cut taxes too much, Senator. I think we could stand some tax changes. That is a very unpopular thing. The President said, "I will not accept it."

Senator GARN. Let me debate you a little bit on that. I have been here through many tax increases in 10 years, and you or no one else can show me one example of where a tax increase has reduced the deficit. TEFRA, 1982. I voted for it on the same basis you are presenting to me. OK, I don't like tax increases, they are not popular, and as chairman of the Banking Committee, I voted for withholding of taxes on interest and dividends at source. There wasn't any more unpopular decision than that.

Mr. COAN. A fire storm broke out.

Senator GARN. There was a fire storm on that, but I stood up, and I said, "We have got to reduce the deficit by $190 billion in 3 years." This was nearly 3 years ago. You know what Congress did. Instead of applying that to the deficit for each $1 of new taxes we collected, we spend $1.04 to $1.06. So we spend it all, the same thing we debated on the floor of the Senate.

One windfall profits tax and also the taxes on imported oil. "What in the world are we going to do with the surplus?" The debate is there in the record.

What would we do with the surplus? Well, we spent it all.

In 1977, I sat on the floor and was told if I voted for the tax increase on social security it would fix the system for 75 years. Even by congressional standards, to miss our estimate by 70 out of 75 years is a little bit gross. So just from a factual basis, there is no time that taxes have reduced the deficit through many decades, now. They simply have not. The converse is true.

Mr. COAN. It did, Senator. Just in the late sixties, they did. Lyndon Johnson finally woke up and realized he had to pay for some of what he was spending in both guns and butter late, very late, and taxes were increased in 1967–68, and we had a surplus for the next fiscal year.

Senator GARN. You can't attribute it just to that.

Mr. COAN. But this was a major contributor.

Senator GARN. You can go back to John Kennedy in 1962 and how tax revenues increased because of a tax cut. Now, by any measure you want to make as a percentage of GNP, I would vote for a tax increase right now if it were used to reduce the deficit. You may cite me one example, Carl, but the overwhelming record of the Congress of the United States is they spend every damn dime they can get their hands on and more, and the major reason for the deficits of today are not from the spending from last year. If I canceled, if I had the power—and I don't want to—to cancel every housing program and do away with HUD, there is $250 billion of outstanding debt out there to be paid on housing programs, some of them passed before I ever became a Senator. Until people wake up to that fact that we have continued, and you talk about the problem of expenditures. Now, I don't know whether Treasury is in some great conspiracy to kill those programs or not, but in the long run, paying off those will save money down the line.

Mr. COAN. That is true: I don't deny that. When you buy your house or I buy my house, we don't pay cash. We don't have the cash to do it.

Senator GARN. I understand, but the point is, the major reason for the deficits today is Congress always makes a short-term decision. So we can say that $15 billion now shouldn't be spent, but down the road, after you and I are gone, some Congress will say, "Those damn fools, look what they have done to us."

That is the case. We are continually paying for short-ranged decisions of the past. This is the only reason I am taking you on, and it is not personally. We have known each other for a long time. But I constantly hear that a tax increase will solve the problem. No tax increase in the 10½ years——

Mr. COAN. Not in and of itself.

Senator GARN. Well, even part of it. Because I will give you a perfect example. I have got a friend, a very close friend, that is closer than you. I won't tell you it is so close. Anyway, he used to make $10,000 a year, was always in financial difficulty. The only solution to his problem was more money. He got a rather sizable raise at one point and went from $10,000 to $25,000 all at once. I sat down with him, counseled him and said, "Now is an opportunity to pay off all your debts, just slow down your spending now and pay off all your debts." No, he spent $35,000. He is a person who makes in excess of $250,000 a year and spends $300,000.

You can track the Federal Government. We have, as a percentage of GNP, by most any measures you want to look at, high levels of taxation across the board.

Reagan didn't make much of a dent in that. We are still paying at historical high levels, and that is a factual record.

Now, I won't be conned again. I voted for a tax increase in 1982 to be used to reduce the deficit, and lo and behold, we didn't get a $198 billion reduction. Until Congress is willing to reduce spending, I will vote for any tax increase that gives me a dollar's worth of tax increase and it is applied to the deficit on a dollar's worth of expenditure so it will get a two-for. I will be damned if anybody is ever going to con me into voting for a tax increase just because of a continual spiral, because there is no evidence in the last 15 years that that has worked.

Congress is just exactly like my friend. That is why I have to ask the question: You know we are not going to get 150,000 units. You know that, and I know that. We are not going to get a moritorium.

Mr. COAN. I am a representative of organizations. I don't understand policy resolutions. You should have heard what they started out at. We do need a heck of a lot more than what is proposed. I understand that.

Senator GARN. You are not going to get a moritorium or 150,000. You will more likely get 100,000 or 110,000.

Mr. COAN. I am more like the President. The President says, "We're not going to do anything." He has a little more pragmatism to him when it comes from push down to a shove sometimes; the deal is cut. I have a hard time. My people wanted to call for 600,000 or 1 million units. I said, "Wait, you are going to laugh me off the Hill." I don't think 150,000 units will laugh me off the Hill. I don't know. It will be extraordinarily difficult to get it, but I mean those are the problems you brought in. You were active in that sort of organization in the League of Cities and know some of that.

Senator GARN. But our problem is simply that certainly, you have to represent the groups that send you here and they would like to ask for more. Then every group is here asking for more in each and every other area.

Mr. COAN. Really, I am not asking for more in many areas, Senator. I am really saying keep us. We have had the cuts in housing, community development, especially housing has had the cuts.

Senator GARN. Until Congress looks at entitlements, as I said 20 minutes ago.

Mr. COAN. Let me see if I can get $198 billion from TEFRA. I wonder sometimes whether there was $198 billion in TEFRA, because if you ever go back and ask the Joint Tax Committee or Treasury to analyze what happened from the recommendations, from the estimates they made as to tax revenue impact from a certain action, you will find that that never occurs. They never will give you an answer. I have tried on several occasions. You know in the real estate and housing area, which I am concerned about, you guys say, "This is where the billion dollars was back in 1981 or 1982." Did you get the billion dollars? Did you get $2 billion? Did you get $500? We can't do that.

Senator GARN. If you didn't, that makes my point even stronger, then.

Mr. COAN. I don't know. I'm not sure there is $198 billion in there, because many of these things were gimmicky tax provisions, many of these things. These were saying, we are going to have *x* number of IDB's for hot tubs or ski resorts. Therefore, we are going to cut them out and we are going to gain $100 million and save revenues. We may not have ever had that *x* number. But if you put *x* number of dollars and if you are talking about straight income tax rates or you are talking about a surtax or some other thing, my president, Floyd Hyde, would have said, "What we need is a surtax for some period of time and that goes solely and exclusively to reduction of the deficit." That is what Floyd would tell you here. He would also have told you that we have lost $750 billion in revenue over the last 5 years and he will also tell you we had a $250 billion increase in defense spending. There is our billion dollar increase in the deficit. It is not quite that simple, but there are some very substantial threads of truth to that in real fact.

Senator GARN. But if there was less revenue than $198 billion, then you make my point all the more about Congress not willing to restrain spending, because if we spend $1.04 to $1.06 for each $1 we took in, if we only took in 50 cents, and spend $1.04——

Mr. COAN. Real gimmicks. I don't know if they were even there.

Senator GARN. You made my point even more strongly. Only one point, there is another point that bothers me of trying to make defense the scapegoat. The other side of that problem is during the 1970's real defense spending was cut 22 percent, and in John Kennedy's last budget in 1962, 48 percent. When you want to look at it, this is not a gigantic buildup. It is a replacement for what Congress did in the seventies. In most of the years of our history, even in peacetime, we spent 40 percent or more of our total budget for defense. If Ronald Reagan had gotten every dime he asked for, every single dime, he would have gone to 30 percent. I don't want 40 percent. I don't want 30 percent, but 23 or 24 percent.

Mr. COAN. Social security has played a big factor in that over the last 30 or 40 years. Social security, what they count under John Kennedy isn't counted in the budget.

Senator GARN. It still isn't counted in the budget now.

Mr. COAN. Oh, yes, yes. That is why the compromise with the President calls for reducing the COLA for social security, because that will reduce the amount of money paid out and that will reduce the deficit.

Senator GARN. It does not——

Mr. COAN. The social security portion, that total is a bigger portion percentage than it was 20 years ago because the population going into social security has increased.

Senator GARN. We are playing bookkeeping entries here. But on the social security program, you have heard people say it many times: Those who oppose any cuts——

Mr. COAN. I am not talking about that. That is a different issue.

Senator GARN. Because it is not part of the budget. Where it impacts, as chairman of the Banking Committee, where it is on budget or off budget, the pressure on borrowing in the private markets is there, whether you call it on budget or off budget.

Mr. COAN. We ought not to cut that.

Senator GARN. It still has the problem on the crowding out.

Mr. COAN. We shouldn't go after that $15 billion, then. We should let that stay out there in the private market instead of increasing the Federal Government's borrowing by $15 billion.

Senator GARN. We should, and we should slow down all these programs so that some poor Congress or trade association down the years can argue about $500 billion deficits because we just pushed it down the road to them.

Mr. COAN. That is so, sir.

Senator GARN. Tell Floyd hi for me. Carl, I still love you.

Mr. COAN. Thank you, Senator.

Senator GARN. Thank you.

Mr. COAN. Thank you very much.

[The statement follows:]

STATEMENT OF CARL A.S. COAN, JR., LEGISLATIVE COUNSEL, NATIONAL HOUSING CONFERENCE

Mr. Chairman and members of the Subcommittee, my name is Carl A. S. Coan, Jr. I am Legislative Counsel for the National Housing Conference, on whose behalf I should like to thank you for the opportunity to present our views today on HUD appropriations for FY 1986.

As the oldest national organization concerned with the provision of adequate housing and decent neighborhoods for all Americans, we find the prospects for continual progress toward meeting these goals, as presented in the Administration's budget proposals, very discouraging. In fact, one could almost typify the Administration's 1986 proposal for HUD as an unappropriation, because the results that are likely to ensue from its adoption will be the undoing of 50 years of effort by the Federal Government progressively to meet the nation's housing needs.

The National Housing Conference, at its 53rd Annual Convention just one month ago, considered the Administration's proposals for FY 1986 and rejected them as efforts to turn back the clock. In its resolutions, NHC pointed out that this Administration had made similar proposals over the past several years to eliminate most assistance for low and moderate income housing. These proposals have been rejected by the Congress, which has continued to authorize and appropriate modest sums for these housing programs.

While these modest program levels have frequently been nothing more than tokens compared to the need, the Administration would now end even those token efforts. These budget proposals are irresponsible if one accepts, as a bipartisan majority of the Congress has over the past 50 years, the proposition that the Federal Government does have a role to play in assuring that its citizens are able to obtain decent shelter that they can afford.

In rejecting the Administration's proposals, the National Housing Conference in its resolutions adopted a series of proposals which we believe are the minimum necessary to be funded in the coming year if we as a nation are to meet our responsibilities to all our citizens. I have attached to my statement a copy of our full set of resolutions which I urge you to review. I should like now, however, to highlight some of the principal recommendations contained in those resolutions:

-- The Public Housing program should be continued with appropriations for at least 20,000 additional units; funding of the Modernization program at a minimum level of $2 billion; the provision of adequate operating subsidies; and the provision of only those funds needed to support Treasury financing of both existing and prospective public housing notes until the problems under the tax code are resolved -- not the almost $15 billion buy-out proposed by the Administration.

-- Full funding of the Community Development Block Grant program, without any increase in the share of those funds going to non-metro areas for the purpose of making up for termination of the FmHA development programs.

-- Continuation of the UDAG program at the same $440 million level as this year.

-- No funds should be provided for HUD to take on the FmHA housing and development programs -- these should remain in FmHA.

-- The continuation of housing assistance for Indians and Native Americans and full funding for the infrastructure, such as sanitary facilities, needed to support that housing.

-- Sufficient funding for the production of at least 150,000 units of multifamily housing for low and moderate income families, elderly and handicapped, including a continuation of the 202 and Housing Development Grant programs and, if necessary, the Section 8 program unless some other means can be found to provide needed housing for those served by the program.

-- The continued funding of the Section 8 Existing and Moderate Rehabilitation programs, in lieu of the untried voucher program.

-- Continuation of the 235 program at a level sufficient to produce 50,000 units.

-- Appropriation of the $60 million for housing assistance for the homeless authorized in the Housing and Urban-Rural Recovery Act of 1983.

-- No increase in the present user fees imposed under various FHA, VA and GNMA programs.

There is no question that these recommendations will entail a commitment of funds significantly above those proposed for 1986 by the Administration. Housing cannot be built or maintained for nothing. Nor can our urban and rural communities be made better places in which to live without the expenditure of money.

We recognize that the Federal Government confronts, as it has confronted for each of the last four fiscal years, a massive deficit. But, that deficit is not the fault of the tens of thousands of low-income families who are on housing authority and project waiting lists. Nor is that deficit the fault of the unemployed person who stands the chance of paying his or her own way, as the result of obtaining a job from a UDAG-assisted development in a distressed community.

The housing programs of HUD have been cut by 2/3 since 1981 and yet the deficit has continued to grow. HUD's Community Development programs have remained static over that time and yet the deficit has continued to grow. If reduction of the deficit is the primary reason for these further devastating cuts, one has to wonder why the Administration has proposed, in conjunction with its 1986 budget, to expend almost $15 billion in FY 1985 to buy out most of the loans presently financing public housing.

We are told that this is necessary because of problems brought about by provisions in the Tax Reform Act of 1984. Yes, there are problems, but not unsurmountable ones if one is desirous of remedying the problem. No serious effort has been made by the Administration to remedy a problem which was brought on by legislative language it asked for.

For some reason, the Administration is willing to withstand a $15 billion increase in outlays in 1985 rather than propose a simple statutory solution, if even that is necessary. Could it be that deficits are not the real concern sought to be addressed insofar as the housing and community development programs of HUD are concerned, but really a disguise to facilitate the termination of those programs. Perhaps even the $15 billion increase in the deficit for 1985 is looked upon as a means of making things look better in 1986 when that outlay will no longer be necessary.

We urge the Subcommittee to continue a Federal role in assuring that our citizens have an opportunity to be adequately housed in decent communities. You have recognized this responsibility in the past and we urge you to continue to recognize it.

Thank you.

OVERVIEW

Since the Housing Act of 1949, the country had made great strides in improving housing conditions for millions of Americans. Many American cities had turned the corner and were becoming economically vital and exciting. Those were not accidental happenings. The federal assistance programs worked. Often in partnerships with private, local and state capital, the national investment was paying off. We were still far short of meeting the goal of decent housing for every American and decent neighborhoods and a viable economy in our cities and rural areas, but there was progress.

In recent years, that progress has been ended and there have been efforts to turn back the clock. A brief tour through any major American city, and many smaller cities and rural areas, will reveal that there are still millions of Americans living in substandard housing and millions more who have no homes at all and may be found on the streets of every major American city. It will also reveal that there is still much to be done to reverse urban decay and economic obsolescence. The 1986 budget request makes evident to all the administration's cynicism when they discuss their "safety net."

We believe it is outrageous that, in view of such need, the administration, in the name of economy, now proposes to virtually end federally assisted housing programs and drastically reduce or eliminate programs designed to help the cities and local governments meet their housing, community development and economic needs.

In March of 1984, the National Housing Conference completed its study of housing need in the nation, then and to the year 2000. The authors, using standard sources, estimated that the then-existing need for standard, affordable housing was in excess of 8 million units. They wrote that, in order to meet that need by the end of the century, as well as replacing stock lost to demolition and conversion, and meeting the demands created by new family formations, the housing industry should produce an average of 3.5 million units annually (rehabilitated as well as new). 15% to 20% of those units would require some kind of assistance.

The Conference has, in prior years, opposed President Reagan's budget cuts in housing and proposed modest increases in programs which would at least prevent the nation from falling further behind in meeting need. The Congress, in response to public demand, has blunted some of the proposed cuts, but still most assisted housing programs have been gutted.

This year, Chairman Gonzalez of the House Housing Subcommittee has introduced legislation which, if enacted, would begin the slow process of restoring strength and vigor to the assisted housing programs of HUD and FmHA. The National Housing Conference supports the basic thrust of that legislation, recognizing that the 283,605 units it proposes for FY 1986 are far less than needed.

We also oppose any efforts by the Congress or the President to amend the tax laws under the guise of "tax simplification" that would diminish the capacity of the housing industry to produce needed housing, or that would increase the cost of existing or new housing.

Our following resolutions address programs and issues of particular importance, many of which have been proposed for elimination or ignored by the administration.

Public Housing

- We support, for fiscal year 1986, an authorization and appropriation level of at least 20,000 additional units of public housing.
- We support full funding of the CIAP (modernization) program in FY 1986 at a level of at least $2 billion, to assure the preservation of existing public housing stock and avoid the demolition of rehabilitable projects.
- We support a level of operating subsidies that will permit housing authorities to maintain units properly and to provide adequate staff for the management of their projects. We believe $1.4 billion should be adequate for FY 1986.
- We oppose the recapture of prior year interest earnings of PHAs through retroactive reinterpretation of regulations. We further oppose any recapture that goes back more than one fiscal year.
- We call for the continuation of the use of tax-exempt, short-term and long-term financing of public housing projects. This least costly financing means, used since the beginning of the program, should be maintained through such adjustments to the Internal Revenue Code as are necessary to overcome the unintended harmful changes of the Tax Reform Act of 1984.

Community Development Block Grants

- We are absolutely opposed to the Administration's proposed reduction of funding by 10% in FY 1986, when in fact funding should be substantially increased. There is an increased number of recipients, and the needs of the cities continue to grow if they are to improve areas which are physically and economically deteriorating. Yet, despite the needs and the inroads of inflation, funding for this program has remained at a relatively constant level for many years, and would now be reduced. This has meant that cities have far fewer dollars to meet program needs. Also, there have been additional mandated costs (e.g., relocation) and many new demands on the program as a result of the cutting back or elimination of other federal programs. In addition, we oppose changing the metropolitan -- non-metropolitan funding ratio from 70-30 to 60-40; and to further community development in non-metropolitan areas, we strongly recommend retention of the FmHA housing and development programs at adequate funding levels.
- We support the inclusion of new housing construction as a CDBG-eligible activity, and the total level of CD funding should be vastly increased to accommodate this activity. This new authority should not be used as a substitute for other low- and moderate-income housing construction programs.
- We recommend that HUD establish a reasonable time limit for states to allocate community development funds for specific project activities, after which unallocated funds would be recaptured into the Secretary's discretionary fund for reallocation exclusively to states with approved community

development projects awaiting funding.

Economic Development and UDAG

- We support a broad range of programs that provide jobs, infrastructure improvements, community revitalization and economic development for the nation's urban and rural communities. This includes specific support for jobs legislation and the UDAG program, which must be continued.

- We note that the UDAG program has been most successful in promoting creative private-public partnerships which are helping economically distressed cities to attract private capital for economic development. There is currently a greater demand than there are funds for viable, important projects. These projects will not survive a long waiting period for funding. There is also a need to assure that projects from all eligible communities have a better chance of being funded than is now possible under present HUD criteria giving preeminent consideration to the extent a community is distressed. We support UDAG funds being allocated two-thirds on the basis of distress,impaction and project quality, and one-third solely on the basis of project quality. We also support the provision of sufficient funds to assure the workability of this new allocation system.

Cooperative Housing

- We support tax reform for cooperative housing which would clarify member income and would provide the benefits of cooperative housing taxation to all cooperatives whose principal purpose is the provision of housing to its members.

- We request HUD to promptly issue workable regulations for FHA-insured share financing as provided in the 1983 Housing Act.
- We support the elimination of the existing cap on housing loans that can be made by the National Cooperative Bank.
- We support the use of tax-exempt financing for cooperative housing, both for blanket mortgage and share financing. In order to assure blanket mortgage financing, it is essential that such financing be authorized under the multifamily provisions of the Internal Revenue Code [Sec.103(b)(4)(A)], rather than the single family. We oppose, however, denying to cooperative shareholders, in a cooperative using tax-exempt blanket mortgage financing, the deduction for real estate taxes and interest payments for cooperative shareholders currently permitted under Section 216 of the Internal Revenue Code.

Fair Housing, Equal Opportunity, Affirmative Action

- We support legislation which would extend the Fair Housing Act to protect the handicapped capable of independent living and families with children, and which would provide for strengthened enforcement by the appointment of administrative law judges to hear and adjudicate housing discrimination complaints, and clarify ambiguities in coverage to assure protection against all forms of discrimination by all elements of the housing and home finance industry.
- We support any housing and housing-related programs which further the goals of racial and economic integration. The end of funding for new production makes it most difficult for low- and moderate-income families to broaden their geographic opportunities for finding decent housing that they can afford.

Rural Housing, Indian and Native American Housing

- We oppose the transfer of FmHA housing and development programs to HUD and, instead, continue to support the full funding of Farmers Home Administration's housing programs, including the 502 low- and moderate-income single family and 515 multifamily programs with rural rental assistance.

- We support efforts to restore Farmers Home Administration funding to the FY 1982 level of $3.8 billion, including funding at the authorized level for the rural preservation program, restoration of funding for self-help housing, and 504 repair grants for elderly homeowners. We note that the targeting initiatives of the 1983 legislation are working in some states, and urge the Congress to exercise its oversight authority to assure its universal success.

- We support the continuation of existing housing programs for Indians and Native Americans and full funding of the infrastructure needed to support such housing. No housing should be constructed without adequate sanitary facilities.

- We support appropriation of sufficient funds to assure adequate staffing of the FmHA Housing Assistance Program.

Other Federally-Assisted Housing Programs

- We support and encourage all administrative and legislative actions which would accelerate the undertaking of projects in the HUD, state agency and FmHA pipelines.

- We support the need for a workable multifamily program to support a substantial level of production of housing for low- and moderate-income families, and for the elderly and handicapped, of not less than 150,000 units per year. The Housing and Urban-

Rural Recovery Act of 1983 was a start with its new multifamily production and rehabilitation programs. It is inexcusable that they are being proposed for elimination even before all regulations are in place and program bugs are eliminated. We would fail to produce even a minimum level of units needed for the nation to be able to properly house all its people in units they can afford.

- We support the continued use of tax-exempt financing for the development of single and multifamily housing.

- We affirm a need for housing programs that increase the supply of decent housing. Various budgetary estimates seem to rely only on the housing voucher program. We believe that this creates the erroneous impression that this program increases housing supply. It does not.

- We support restoring Section 8 for new construction and substantial rehabilitation, until or unless a suitable substitute program has been developed to serve the same income group.

- We oppose substituting vouchers for existing Section 8 and moderate rehabilitation programs. Furthermore, the existing Section 8 program must not be weakened through inadequate or frozen fair market rents or administrative fees.

- We support the restoration of the Credit Control Act of 1969, to permit use of selective credit regulation in order to bring about more affordable interest rates.

- We support the Section 235 program and urge that it be extended with a greatly increased authorization. We believe this program has been a most important tool for the provision of homeownership opportunities for moderate income families, and we believe funding should be at a level to produce at least 50,000 units annually.

- We support the continuation of the Section 312 rehabilitation program. The present program is operating through a recycling of funds received from repayment of existing loans. We suggest an additional $100 million of loan authority.

- We affirm the federal government's continuing commitment to retaining at least the current number of units of federally assisted housing, which are now occupied by low- and moderate-income households. This includes all present public housing, HUD-assisted and HUD-held units, as well as units assisted by the Farmers Home Administration. Where such units are or have been removed from the supply, they should be replaced. The necessary funds should be provided to maintain this housing in viable condition and to continue the low- and moderate-income character of projects acquired by HUD and subsequently sold by it.

- We call upon HUD to move expeditiously with the full implementation of the new "board and care" program and urge that the FHA 232 mortgage insurance program, under which this new program would be carried out, be extended to the same extent as all other FHA programs.

- We support the maintenance and strengthening of existing programs and activities that direct credit resources into the housing mortgage market, such as FHA mortgage insurance and GNMA mortgage-backed security programs, without arbitrary caps on their use. We support the development of new mechanisms to assure that an adequate amount of mortgage funds are available for housing.

- We reaffirm our long-standing support for FNMA and FHLMC as quasi-public, private corporations, dedicated to directing capital from the secondary markets into housing at reasonable rates. We oppose efforts to weaken these organizations by removing their governmental linkage or imposing so-called user charges.

- We support legislation to remove the present statutory limitation, imposed in 1981, on the percentage of families with income between 50% and 80% of the median that can be admitted to Section 8 and public housing projects, and to restore to 25% the rent-income ratio applicable to tenants receiving public housing, Section 8, rent supplement, 236 and FmHA assistance. These steps, taken together, would improve the viability of these projects, foster increased economic integration and protect the public interest in the projects.

- We urge HUD to implement policy and regulations which would permit Section 11(b) financing to be used for moderate rehabilitation Section 8 projects, as permitted by existing legislation.

- We oppose the suggested changes in FHA, GNMA and VA user charges. It would appear that they have been suggested only as devices to effectively kill the programs.

- We urge the immediate appropriation of $60 million for the homeless housing assistance program as authorized in the Housing and Urban-Rural Recovery Act of 1983.

- We support legislation, such as that proposed in 1984 by Congressman Lundine and Senator Heinz, which would broaden the scope of the Section 202 program and increase substantially the number of units assisted. Their proposals would make approximately 36,000 units of senior citizen and handicapped housing available annually to non-profit, limited-profit and housing authority sponsors.

HUD Staffing

- The morale of HUD staff is very low. There have been numerous reorganizations, reductions in staff level, changes in program policy -- all of which have contributed to an atmosphere in which there is a feeling of lack of stability and lack of appreciation for the professionalism and dedication of HUD's career employees. The programs enacted by the Congress can only be effectively and efficiently administered by a staff which feels that it is appreciated and has a sense of mission. We call on the HUD Secretary to undertake a vigorous program which would promote stability and improve morale.

VETERANS ADMINISTRATION

STATEMENT OF DONALD H. SCHWAB, DIRECTOR, NATIONAL LEGISLATIVE SERVICE, VETERANS OF FOREIGN WARS OF THE UNITED STATES

MEDICAL HEALTH CARE

Senator GARN. Next, Mr. Donald Schwab, director, National Legislative Service, Veterans of Foreign Wars of the United States.

Mr. SCHWAB. Thank you, Mr. Chairman, and welcome back.

Senator GARN. Thank you.

Mr. SCHWAB. Thank you for the opportunity of appearing before this distinguished subcommittee.

Mr. Chairman, we have labeled the President's budget and applying equally to the Senate-administration deficit reduction plan, an unprecedented assault on the Veterans Administration hospital and medical care system.

The medical care system is to lose 8,000 more personnel by 1990. If the construction budget is to be restricted to two renovations or replacements a year. If we have third-party reimbursements consolidating the VA regional offices, an increase in the user fees, instituting a needs test for medical care, it is going to raise havoc with the Veterans Administration's entire system.

Not a part of my prepared text, but Dr. Donald L. Custis, retired Surgeon General of the Navy, former Chief Medical Director of the VA, in testimony to the House Veterans Affairs Committee with respect to the budget had this to say:

> It is unlikely that the VA health care system could be dismantled by fiat. But there is clear and present danger that full implementation of certain of these options would be tantamount to its destruction.

I will not belabor you with our position on each one of these proposals. You have read my testimony. You know what they are. COLA is a mishmash as it is presented at the present time. The President recommended 4.1 percent in compensation, and some of the entitlement programs, S. Congress 32, recommended a freeze on some.

We now have the proposition of a guaranteed 2-percent COLA for the next 3 fiscal years or if inflation escalates, 2 percent less than inflation.

Our position, Mr. Chairman, is that no beneficiary of an entitlement program should receive a greater COLA than our disabled veterans. If there is to be a freeze or a moritorium of COLA, it must be across the board with no exceptions, and I think this is one of the keys to deficit reduction. I haven't got the current figures, but 2 years ago, I talked to the Budget Committee people, and they said, if we have a moritorium for 1 year, we save $18 billion, but as a result of that 1-year moritorium, 5 years down the road, we would save $85 billion. I don't know what the current figures are.

But our priorities for the budget, I think, are clear cut. We believe the first priority should be given to national defense. It should be funded sufficiently to ensure our continued freedom under any contingency. Next come benefits for our disabled veterans and their survivors. Everything else follows.

ARLINGTON NATIONAL CEMETERY

One other item I would like to touch on, Mr. Chairman, not part of the Veterans Administration's budget, but under the purview of this subcommittee is funding for a new and permanent visitors center at Arlington National Cemetary. I know the money is in the 1985 budget for design, and they need additional money in both 1986 and 1987, and $8 million and $9 million, and our current VFW resolution 626 is fully supported. We recommend that the moeny be included in the budget.

In closing, let me take this opportunity to express the appreciation of the VFW to you, Mr. Chairman, and the subcommittee and the full committee for your understanding with respect to our concerns and your concern for our veterans and their dependents and survivors, and I thank you.

Senator GARN. Thank you very much. I appreciate your willingness to testify.

Mr. SCHWAB. Thanks.

[The statement follows:]

STATEMENT OF DONALD H. SCHWAB, DIRECTOR, NATIONAL LEGISLATIVE SERVICE, VETERANS OF FOREIGN WARS

Thank you for the privilege of appearing before this distinguished Subcommittee to present the views of the Veterans of Foreign Wars of the United States.

My name is Donald H. Schwab and it is my privilege to serve the more than 2 million men and women of the Veterans of Foreign Wars as their National Legislative Director.

Mr. Chairman, as of this writing, a budget for the Veterans Administration has not been established. The President recommended $26.7 billion in outlays. This figure represents a decrease of $82 million from the current fiscal year and 2.7 percent of the Federal budget of $973.7 billion in outlays. S. Con. Res. 32 reported by the Budget Committee would establish a Veterans Administration budget of $26.0 billion in outlays or, again, 2.7 percent of the Federal budget of $949.1 billion in outlays. In addition, under S. Con. Res. 32 reconciliation would require the Senate and House Committees on Veterans' Affairs to achieve savings in outlays amounting to $1,059,000,000 (one billion fifty-nine million dollars) in the fiscal year 1986. The Senate/Administration Deficit Reduction Plan dated April 15, 1985, would impose additional reductions.

At this point in time, Mr. Chairman, there is no way of knowing what dollar amounts will be agreed to by the Senate, the Congress, and the President. We do, however, know the areas where serious consideration is being given to making deep cuts in veterans benefits and entitlements.

When the Commander-in-Chief of the Veterans of Foreign Wars, Billy Ray Cameron, testified before a joint hearing at the Senate and House Veterans' Affairs Committees in March, he labeled the President's proposed budget for the Veterans Administration "...an unprecedented assault on the Veterans' Administration and its hospital and medical care system sugarcoated by a proposed 4.1 percent cost-of-living increase in compensation and pension to be effective December 1, 1985." This assault included:

1. For the medical care system presently operating with a shortage of 10,000 personnel and 1,900 targeted for reduction under the one percent productivity improvement program, the reduction of an additional 8,000 personnel by 1990.

2. A reduced construction budget would permit the replacement or modernization of but two Veterans Administration medical centers per year.

3. Third-party reimbursement for health care provided in Veterans Administration facilities.

4. Consolidating into three "benefit processing and support activities" the adjudication of veterans claims and the maintenance of claim files and reducing the remaining 55 former Regional Offices to mere contact points.

5. Increasing the users fee from one percent to five percent under the Veterans Administration's loan guaranty program.

6. Instituting a needs test for medical care within Veterans Administration facilities for most veterans suffering from nonservice connected disabilities regardless of age.

Mr. Chairman, the Veterans Administration medical care account must be enhanced by the restoration of funds to preclude a devastating further reduction in the medical care to which veterans are entitled by present law. According to the Veterans Administration, a quarter of a million veterans a year are now being denied needed treatment and the Senate Budget Committee recommended funding would require further denial of care and dumping on community facilities some 379 thousand more medically indigent veterans.

It is our hope, Mr. Chairman, that restricting major construction to two replacement hospitals or modernizations per year is a temporary situation. If not, with 172 existing hospitals, it would take 86 years to go full circle. The most immediate concerns of the VFW are that the replacement hospital at Houston, Texas, not be downsized but built with the 1,049 bed capacity as designed and needed. Furthermore, it is our opinion that the projected savings of $56.4 million if reduced to 805 beds would be consumed by the cost of redesigning and the optimistic 12.5 percent inflation creep over the three-year interim period. In addition, the ten-year old Baltimore, Maryland hospital fiasco should promptly be resolved by constructing the hospital on the site where the Veterans Administration has already spent $8 million. Renovating the 33-year old Loch Raven Medical Center does not appear as a very prudent alternative.

Mr. Chairman, third-party reimbursement has again surfaced. The VFW opposes this porposal not only because the anticipated savings of $65 million a year are overly optimistic since approximately only 45 percent of veterans hospitalized in VA facilities have any form of health insurance; not only because most health insurance policies preclude payment if the patient is cared for in a Federal hospital; not only because a major health insurance company has testified that premiums would have to be raised for all policyholders; but, perhaps the most compelling reasons are that the VA does not have the sophisticated automatic data processing system to compute billing acceptable to insurance carriers and, above all else, the VA does not have the more than two thousand additional personnel required to handle the extra administrative burden, which apparently the Administration has no intention of providing.

The proposal to reduce all but three Veterans Administration Regional Offices to mere contact points with neither adjudication capability nor the requisite claims files of veterans, Mr. Chairman, is now as strongly opposed by the VFW as it was when contained in the proposed fiscal year 1982 budget. The claimants access to a full and fair hearing would be greatly restricted and be a serious infringement of the right to due process, which is already violated by the denial of judicial review.

Mr. Chairman, the President's budget proposed increasing the users fee under the VA Home Loan Guaranty program from one percent to five percent. The Senate/Administration Deficit Reduction Plan would phase in an increase of 3.8 percent over three years. It is my understanding another plan is being considered to phase in over four years an increase not to exceed 3.8 percent. The VFW opposed the imposition of a users fee in the first instance and we oppose any increase now. We hold that the users fee constitutes a discriminatory tax which works both to the veteran's and the home loan program's detriment. In addition, the Congressional Budget Office now estimates that under current law, the Loan Guaranty Revolving Fund could sell sufficient assets to meet its projected deficits through 1990, which would eliminate the need of appropriations during this period and certainly negate the need for a users fee increase if not justify its complete elimination.

Mr. Chairman, the Administration is pressing for the passage of legislation to deny medical care within VA facilities to most veterans suffering from nonservice connected disabilities unless in receipt of pension, medically indigent, a former Prisoner of War, or having suffered radiation or herbicide exposure, regardless of age. This, of course, is contrary to current law and opposed by the VFW in the strongest terms. The VFW has historically held that any honorably discharged veteran who served on active duty in our Armed Forces during periods of war and hostility and in need of care should be provided that care by the Veterans Administration. With respect to this issue, we resent the use of misleading statements to sell this proposed retrenchment of health care. A White House briefing for the Women in Housing and Finance on February 15, 1985, contained the following: "Free care would continue to be provided for veterans suffering from disabilities incurred while on active duty; and all veterans with incomes below twice the VA pension income standard (currently $18,828 for a family of four)." Not many veterans over

65 head a family of four. In fact, according to the VA, most nonservice connected hospitalized veterans are alone, poor, ill and, more often than not, minorities. The Senate/Administration Deficit Reduction Plan, dated April 15, 1985, contains this verbage: "Non-poor veterans over the age of 65, like the rest of the elderly population, are fully covered by Medicare." Coverage under Medicare is not automatic, it must be applied for and paid for by the retiree. More importantly, any beneficiary believing he or she has "full coverage" is due for a rude and perhaps financially devastating awakening since Medicare far from pays all and will pay much less in the future. The deficit reduction plan under the heading "Medicare Freeze and Reforms" reflects cuts in Medicare of $3.7 billion in 1986, $5.8 billion in 1987, and $8.4 billion 1988 for a three-year total of $18.1 billion.

Mr. Chairman, the President proposed a 4.1 percent cost-of-living increase (COLA) in the compensation, Dependency and Indemnity Compensation (DIC), and pension programs. Subsequently, the Senate Finance Committee recommended a one-year moratorium on COLA in the compensation and DIC programs but a full COLA in the means-tested pension program. The more recent Deficit Reduction Plan is a mishmash of priorities and badly addresses the COLA issue. Compensation, DIC, pension and social security would be guaranteed at least a two percent COLA in each of the next three years. If actual inflation exceeded the four plus percent now anticipated, adjustment would be made as follows: if, in 1986, inflation was 6.1 percent rather than the expected 4.1 percent, COLA would be increased to four percent. Full COLA would be granted to those in receipt of Supplemental Security Income, Food Stamps, Aid to Families with Dependent Children, and the Women, Infants and Children's programs. Federal civil service and military retirees would fall under the 2 percent COLA, but Federal civilian employees would receive neither COLA nor within-grade pay increases in 1986. The position of the VFW is that no group should receive COLA in excess of that granted our service connected disabled veterans and their survivors. Furthermore, any capping or moratorium on COLA must apply equally, across the board, to the beneficiaries of all entitlement programs to be acceptable.

Mr. Chairman, the funding priorities espoused by the VFW are exactly what you should expect them to be. First, whatever amount required for national defense to ensure under all contingencies our continued freedom. Next, adequate funding to maintain the integrity of the Veterans Administration hospital and medical care system and veterans entitlement programs. All else follows.

Mr. Chairman, over and above cuts in VA programs visited upon veterans through reconciliation the last several years, veterans have been contributing to deficit reduction for over a decade. In 1976, the VA budget was 5.0 percent of the Federal budget of $371.7 billion and it is estimated at 2.7 percent of the 1986 budget well in excess of $900 billion. Within that same period, outlays for veterans health care has fallen from 11.4 percent in Federal outlays for all health care to an estimated 8.9 percent in 1986.

Mr. Chairman, another matter coming within the purview of this Subcommittee is funding for a permanent Visitor's Center at Arlington National Cemetery. Four hundred thousand dollars was provided in the current fiscal year for design specifications. Funding in the amount of $8 million in the fiscal year 1986 and $9 million in 1987 will be required for completion of the new Visitor's Center to honor with proper dignity our fallen comrades. Our current VFW Resolution No. 626, entitled "Funding for a New Visitor's Center for Arlington National Cemetery," is fully supportive and appended to my testimony.

In closing, Mr. Chairman, permit me to take the opportunity to express the appreciation of the Veterans of Foreign Wars of the United States to this Subcommittee and the Appropriations Committee for over the years having demonstrated genuine compassion and concern for our nation's veterans and, also, your understanding with respect to our concerns and recommendations.

Thank you.

Resolution No. 626

FUNDING FOR A NEW VISITORS CENTER FOR ARLINGTON NATIONAL CEMETERY

WHEREAS, Arlington National Cemetery is, indeed, a national shrine wherein rest "in honored glory" American servicemen who made the supreme sacrifice during World War I, World War II, Korea and Vietnam who are "known but to God"; and

WHEREAS, legions of our departed comrades rest in this "bivouac of the dead"; and

WHEREAS, the existing "temporary" visitors center was completed in 1970, with a life expectancy of five years, and this facility has deteriorated to the point where it is both an eyesore and incapable of properly accommodating the thousands of daily visitors; and

WHEREAS, the present location of the "temporary" visitors center interferes with dignified burials and ceremonial activities of the cemetery; and

WHEREAS, in 1977, concept designs for a new visitors center were submitted to the National Capital Planning Commission and the Commission of Fine Arts, none of which were funded by the Office of Management and Budget; and

WHEREAS, $400,000 has been provided for the design specifications for a new visitors center at Arlington National Cemetery for fiscal year 1985; now, therefore

BE IT RESOLVED, by the 85th National Convention of the Veterans of Foreign Wars of the United States, that we urge the Subcommittee on HUD-Independent Agencies of both the Senate and House Appropriation Committees to include additional funds in the amount of $8 million in the fiscal year 1986 and a sum of $10 million in the fiscal year 1987 appropriations for completion of construction of a new visitors center at Arlington National Cemetery to honor with proper dignity our fallen comrades.

Adopted by the 85th National Convention of the Veterans of Foreign Wars of the United States held in Chicago, Illinois, August 17-24, 1984.

STATEMENT OF STEPHEN L. EDMISTON, DEPUTY NATIONAL LEGISLATION DIRECTOR, DISABLED AMERICAN VETERANS

Senator GARN. Next, Mr. Stephen L. Edmiston, deputy national legislative director, Disabled American Veterans.

Please proceed.

Mr. EDMISTON. On behalf of the more than 1 million members of the DAV, we want to let you know how very much we appreciate this opportunity to appear here this afternoon to express our views on the VA's fiscal year 1986 budget request.

Before I do, I would like to take this opportunity, though, to publicly thank you, Mr. Chairman, for your cosponsorship of Senate Concurrent Resolution No. 20, which expresses the sense of the Congress regarding the tax exempt status of VA disability compensation benefits. The VA is most appreciative of your support on that measure.

VA BUDGET

With respect to the VA budget, in budget authority, the request is some $123 million below the fiscal year 1985 level due to so-called savings that the administration has projected with respect to reducing the pay of Federal employees, a decrease in funding for grants to States for construction of extended care facilities, implementation of third-party reimbursement from private medical insurance policies, an across-the-board staffing reduction mandate by OMB, a substantial reduction in construction funding, an increase in the users' fee charged to the veterans that use the VA Home Loan Guarantee Program, and consolidation of the VA's 57 regional offices into 3 major processing centers.

Overall, Mr. Chairman, these projected savings, coupled with other budget proposals and nonbudgetary actions by the administration, in our view, will set a road map for the further decline in the VA's ability to provide quality health care and timely claimed services to America's veterans.

For example, Mr. Chairman, OMB, and VA have circumvented under the law and are operating with fewer beds and with fewer personnel than authorized or required by law. The VA budget states that the agency believes it can now achieve a work load with fewer health care personnel. Yet the VA's own statistics reveal that they are turning away more than a quarter of a million eligible veterans seeking VA health care each year.

Over the years, the health care system from our point of view has been on the decline due to the negative deflated funding growth of the system. The fiscal year 1986 request for medical care is no different than that of the past 10 years. Straight line funding in terms of real growth, coupled with the proposals in the VA budget request for fiscal year 1986, further strengthened our belief in OMB's real effort, and that is to weaken the health care system even further.

Quite frankly, the VA could establish a means test, and Congress could change provisions of current law relating to eligibility for non-service-connected veterans to receive health care, which the administration has proposed. But even if all this is accomplished, we believe that there will be a veteran to fill every bed vacated by those displaced by such proposals. The growing demand that has been placed on the VA medical system, in our view, will continue for a number of years. Therefore, we would urge the subcommittee to provide realistic levels of funding for the VA medical care program.

In closing, Mr. Chairman, in addition to the views I have already set forth here and in our written testimony, with respect to the VA's proposed fiscal year budget request, I want to emphasize that the main reason this budget request is below the fiscal year 1985 level and still provides for a cost of living adjustment in compensation, VIC and pension benefits as well as adding funding to the VA health care program is due to unrealistic legislative proposals crafted by the administration.

Therefore, we would urge the subcommittee to favorably consider our views and recommendations. We ask that realistic levels of funding to enable the VA to adequately administer their programs for our Nation's veterans be provided. Again, I want to thank you for this opportunity to appear here this morning.

VA PROSTHETIC RESEARCH

Senator GARN. Do you have any information on what was accomplished with the million dollars we earmarked last year for research into voice actuated robotic devices?

Mr. EDMISTON. I have not received any followup, except that one of my associates who works more closely with the VA in their prosthetics program expressed to me his happiness with some of the efforts they have been making, but not specifically with that project. I would be more than happy to make inquiries from our point of view.

Senator GARN. I would appreciate it if you would advise the subcommittee. Because we get these requests and it sounds like a reasonable idea, and then we never hear whether the million dollars was spent wisely, whether we are developing something for paralyzed veterans or not. If you could supply us with any information, I would appreciate it.

Mr. EDMISTON. I would be more than happy to, Mr. Chairman. Thank you.

Senator GARN. Thank you very much.

[The statement follows:]

STATEMENT OF STEPHEN L. EDMISTON, DEPUTY NATIONAL LEGISLATIVE DIRECTOR, DISABLED AMERICAN VETERANS

On behalf of the more than one million members of the Disabled American Veterans, I am pleased to appear here today to discuss the budget request of the Veterans Administration for Fiscal Year 1986.

Let me begin by thanking you, Mr. Chairman, and the members of the Subcommittee for permitting us to present our views on the Fiscal Year 1986 VA budget request prior to completing your work on the HUD and Independent Agencies appropriations measure for Fiscal Year 1986.

As you know, Mr. Chairman, on behalf of the Veterans Administration, the President is requesting $27.1 billion in budget authority to administer the various programs and services for our nation's veterans and their families in Fiscal Year 1986.

In budget authority, the VA request is approximately $123 million below the Fiscal Year 1985 level, primarily due to so-called projected savings that include:

* a 5% reduction in pay for federal employees;

* a decrease in funding for grants to states for construction of extended care facilities;

* implementation of third party reimbursement from private medical insurance policies;

* 1% across-the-board staffing reduction mandated by OMB;

* substantial reduction in construction funds;

* an increase from 1% to 5% in the user fee charged on VA guaranteed home loans.

Overall, Mr. Chairman, these projected savings, coupled with other budget proposals and non-budgetary actions by the Administration, set forth a road map for further decline in the VA's ability to provide continued quality health care and timely claims services to America's veterans.

MEDICAL CARE

The Fiscal Year 1986 budget request calls for an overall funding increase in the VA's medical care account of $235 million--an upward adjustment of approximately 2.6%--over the Fiscal Year 1985 level.

According to budget documents, this increase will provide 199 additional health care employees; treat 112,000 more veterans on an outpatient basis and 3,211 more veterans on an inpatient basis; and permit 204 hospital to nursing home bed conversions.

While these documents may indicate an increase in funding for the VA medical care account, upon closer examination it becomes clearly evident that for the current fiscal year and Fiscal Year 1986 VA bed levels and employees will, in fact, decline below that which has been mandated by law or previously authorized by the Congress.

Mr. Chairman, OMB and the VA have circumvented the law. In Fiscal Year 1985 the VA will operate with 600 fewer beds than that which is required by Section 5010(a)(1) of Title 38, U.S. Code and in Fiscal Year 1986 bed levels will drop 900 below statutory requirements.

As you know well, the HUD and Independent Agencies Appropriations Act for Fiscal Year 1985--Public Law 98-371--provided support specifically intended for 193,941 full time equivalent VA health care employees and the Comptroller General of the United States has confirmed that OMB has provided the funds and personnel ceiling appropriated by the Act.

Yet, the VA says, "the agency now projects that the budgeted work loads can be achieved with an employment level of 191,849." At the same time, however, their own statistics reveal they are turning away more than a quarter of a million eligible veterans who are seeking VA health care services each year.

We must question, Mr. Chairman, why the VA or OMB did not inform the Congress that funding was insufficient to operate beds and provide employees at levels authorized or required by law? Or does OMB and VA have another reason for their failure to accurately and promptly inform the Congress of any shortfall in funding? Certainly, OMB has made it perfectly clear that they would like "to shrink the size of the system"--but shrink it to what, we ask?

As you know, Mr. Chairman, the VA health care system has been on the decline for a number of years due to negative (deflated) funding growth. The proposed Fiscal Year 1986 medical care budget is no different than those of the past ten years. For example, last year's budget request for medical care fell 3.5% below the cost of health care in the private medical community and this year's request is again 3.5% below that which was experienced in the private sector during the same period.

Straight-line funding (in terms of real growth) coupled with such proposals as 5% pay reductions; across-the-board staffing reductions; cancelling nurses' scholarships under the Health Professional Scholarship Program; collecting reimbursements from private health insurers of nonservice-connected veterans receiving VA care; repealing the provision of Title 38, U.S. Code that gives veterans age 65 and over eligibility to VA hospital care; and establishing a means test for nonservice-connected veterans seeking VA care, are all further indications of OMB's real effort--destroy the VA health care system.

For example, collecting reimbursements from the private health insurers of nonservice-connected veterans receiving VA health care services is a rehash of an old idea that has time and again been rejected by the Congress.

Today, OMB estimates VA can collect $65 million from these private health insurers, while four years ago they said they could collect over $300 million. VA officials have publicly stated that neither they nor OMB have any sound basis for making such an estimate for this proposal.

Additionally, the Senate Budget Committee recommendation contained in S.Con.Res. 32--First Concurrent Resolution on the Budget, Fiscal Year 1986--assumes the VA can collect $165 million under this same proposal (as recommended by GAO).

Mr. Chairman, given the fact that the vast majority of nonservice-connected veterans seeking health care from the VA have no private health insurance coverage, this collection estimate is highly speculative. Also, if you include the added administrative expenses of collecting these payments, the proposal can be viewed as one that could cost, rather than save, the government money.

Additionally, the Administration proposes to accomplish a "comprehensive reform of VA medical care eligibility" by (1) repealing Section 610(a) of Title 38, U.S. Code--providing eligibility for hospital or nursing home care to any veteran for a nonservice-connected disability if the veteran is 65 years of age or older--and (2) establishing a means test for certain categories of veterans without service-connected disabilities and without regard for age.

It is interesting to note that the Administration is only now proposing a means test that it was directed by the Congress to implement some four years ago.

Quite frankly, Mr. Chairman, the VA could develop a fair and equitable means test and the Congress could repeal Section 610(a) of Title 38, U.S. Code. The end result would be that nonservice-connected veterans with private health insurance would not be admitted to VA medical centers--thus, there would exist little, if any, need for third party reimbursement legislation.

Even if all this were accomplished, we believe that there will still be a veteran to fill every bed vacated by those displaced by the proposed legislation.

One additional point, Mr. Chairman, coinciding with the release of the VA's proposed Fiscal Year 1986 request: the DAV learned that OMB has directed the VA to accelerate plans to contract out positions within the VA health care system to the private sector.

As we understand it, OMB is seeking to eliminate some 30,000 jobs within the health care system over the next five years. Positions that are being scrutinized for possible contracting out include areas such as dietetic services, fire protection, plant maintenance and housekeeping.

As you know, Mr. Chairman, the Congress has, by law, prohibited the VA from contracting out any positions that directly relate to patient care. In our view, many of the jobs under consideration are, in fact, directly related to patient care and, as such, should be exempted from any contracting out review.

In our view, this is just another avenue being used by OMB to thwart the will of Congress and erode the VA health care system. We believe the funding associated with A-76 studies contained in the Fiscal Year 1986 budget could be put to better use--that is, providing care to veterans.

Mr. Chairman, we encourage you and the members of the Subcommittee to carefully scrutinize the Fiscal Year 1986 funding levels proposed for the VA medical care account. We believe such scrutiny will lead you and the members of the Subcommittee to approve realistic levels of funding that acknowledge the growing demand that has been and will continue to be placed upon the VA's medical care system.

CONSTRUCTION

The VA's Fiscal Year 1986 construction request is $156.8 million below the Fiscal Year 1985 level. However, the VA proposes to reprogram $160 million in prior budget authority from the major working reserve to bring the program level to $771.6 million.

Mr. Chairman, while we fully support full funding of the VA's request for construction programs, we are nevertheless concerned, as I mentioned earlier, over the VA's ability to meet the pressing demands on the health care system.

As you know, greater numbers of elderly veterans are seeking nursing home care from the VA, yet, of this construction budget proposal, less than 4% is requested for nursing home care bed construction. We have noted and support the VA's proposal to convert 204 hospital to nursing home care beds, as well as their efforts to replace and modernize their older facilities. However, we trust an appropriate balance will be maintained to meet the acute and intermediate health care needs of our aging veteran population.

Finally, the VA's Fiscal Year 1986 request contains a $12.5 million decrease (under the Fiscal Year 1985 level) in grants for construction of state extended care facilities. The VA's request of $22 million will provide for an additional 450 nursing home care beds and 126 convertible domiciliary/nursing home beds.

As you know, Mr. Chairman, this program has been a tremendous success in terms of encouraging states to actively participate in the nation's commitment to providing quality health care to her eligible veterans. In our view, it is shortsighted to cut funds in a program that ultimately makes savings to the government in terms of both construction and health care costs.

DEPARTMENT OF VETERANS BENEFITS

The Department of Veterans Benefits' Fiscal Year 1986 budget request is down by more than $4 million and 624 employees, compared to Fiscal Year 1985 levels.

According to budget documents, the 624 average employment reduction in DVB personnel is attributed to consolidation of certain regional office activities, declining work loads and management actions to reduce overhead and increase productivity.

As you know, Mr. Chairman, in 1981, this Administration first suggested the idea of consolidating all regional office activities into a single "super" regional office somewhere in the United States. For many good reasons that proposal was soundly rejected by the Congress.

Now, in 1985, this Administration again comes forth with a similar proposal to consolidate only adjudication of compensation, pension and education claims (including Rating Boards), loan processing, finance, administrative and personnel functions into three regional centers. This proposal would relegate the existing facilities to nothing less than contact offices that provide only general information and counseling services--all claims would have to be forwarded to the three regional centers.

Quite frankly, Mr. Chairman, we view this proposal, as we did in 1981: bureaucracy at its absolute worst!

Since 1980, nearly 4,000 employees have been slashed from the Department of Veterans Benefits and, today, each regional office is barely staffed at minimal levels to handle the work load and demand for services from veterans and their dependents.

Consolidation of these already understaffed functions would not only worsen the delays veterans currently experience with respect to claims processing, but deprive them of direct access to the system. For example, no longer would veterans and their dependents have the opportunity for a timely, face-to-face hearing (within a reasonable proximity of their home) with a VA Rating Board and their appointed representative.

Quite frankly, the proposal makes absolutely no economic sense whatsoever. Millions of dollars would be required to relocate employees, obtain office equipment, acquire huge amounts of office space and train new employees (to replace those who did not relocate).

Mr. Chairman, the DAV strongly urges you and the members of the Subcommittee to soundly reject this poorly conceived plan, redirect the $25.1 million the Administration is requesting to implement the plan and restore the 624 DVB employees desperately needed by the regional offices to improve services to veterans and their dependents.

PROPOSED LEGISLATION

The Administration's Fiscal Year 1986 budget request proposes legislation that would provide for (1) an increase of 4.1% in the rates of disability compensation and Dependency and Indemnity Compensation (DIC) effective December 1, 1985; (2) increase from 1% to 5% the loan origination fee on all guaranteed and vendee loans; (3) allow for borrower/lender negotiated rates on guaranteed and vendee loans (mortgages) and terminate the Administrator's authority to set interest rates; (4) repeal transfer authority from the direct loan revolving fund to the loan guaranty revolving fund; (5) repeal the authority that permits the VA to make education loans; and (6) effect reimbursement from third party insurance carriers for the cost of care and treatment of nonservice-connected veterans (to which I addressed our concerns earlier).

The DAV is pleased with the Administration's proposed cost of living adjustment in the rates of disability compensation and DIC benefits and we support the enactment of legislation that would provide a cost of living adjustment in line with the rise in the Consumer Price Index effective December 1, 1985.

However, the Disabled American Veterans would not object to an across-the-board limited COLA or freeze, so long as veterans were treated equally with all other federal beneficiaries.

As noted, the Administration has proposed several legislative changes to the current VA Home Loan Guaranty Program. Of particular concern to most veterans are the proposals that would increase the user's fee from 1% to 5% and remove the Administrator's authority to set the interest rates for such loans.

Quite frankly, these two legislative initiatives appear to be sufficient to effectively destroy the VA Home Loan Guaranty

Program. Yet, the Administration is projecting 220,000 loans will be generated next year by this program.

Mr. Chairman, why would nearly a quarter of a million veterans pay $3,000 to $5,000 just for the privilege of using this program, with not one nickel being applied to reducing the principal of their mortgage? How much would they pay for this privilege over 25-30 years?

Coupling this exorbitant user's fee with the removal of the interest rate ceiling nearly eliminates any benefit to veterans. We believe the Subcommittee should carefully consider the adverse impact these proposals will have upon the Vietnam veterans who are the primary beneficiaries of the program today and, should the proposals be rejected, we respectfully request that the Department of Veterans Benefits be exempted from absorbing the savings associated with the proposed legislation.

CONCLUSION

In closing, Mr. Chairman, in addition to the views we have already set forth with respect to the VA's proposed Fiscal Year 1986 budget request, I want to emphasize that the main reason this budget request is below the Fiscal Year 1985 level--and still provides for a cost of living adjustment in compensation, DIC and pension benefits, as well as adding funding to the VA health care program--is due to unrealistic legislative proposals crafted by the Administration.

Therefore, we urge the Subcommittee to favorably consider our views and recommendations. We ask that you provide realistic levels of funding to enable the VA to adequately administer its programs for our nation's veterans.

Again, I wish to thank you and the members of the Subcommittee for allowing us this opportunity to express our views on this most important subject.

STATEMENT OF HARRY FOZZARD, M.D., BOARD MEMBER, AMERICAN HEART ASSOCIATION AND PROFESSOR, UNIVERSITY OF CHICAGO

Senator GARN. Next, Mr. Harry Fozzard, Dr. Fozzard.

Dr. FOZZARD. Mr. Chairman, I am Dr. Harry Fozzard. I am a cardiology professor at the University of Chicago. I appear here today on behalf of the American Heart Association.

I appreciate the opportunity to comment on the budget proposal for the Veterans Administration Medical Research Service. I served 20 years as a doctor in the Navy Reserve. I have never received any support from the VA system, but I did spend 5 years on their National Peer Review Committee.

The American Heart Association that I represent is a voluntary health organization with 120,000 nonmedical members, 40,000 physicians and scientists, and 2,000,000 volunteers. Our primary goal is the reduction of disability and premature death due to cardiovascular disease and stroke.

We raise, ourselves, over $50 million for medical research each year. We note that the budget proposal recommends a 2.7-percent reduction in the Medical Research Service budget for fiscal year 1986. We feel that this is an unwise decision. We encourage you to maintain the present level of support, possibly with some inflationary increase, for all parts of the Medical Research Program, including the Central Research Administration, and we also call attention to the need in many cases for improved research facilities.

VA MEDICAL AND PROSTHETIC RESEARCH

The reasons that we strongly support the VA Medical Research Service are fourfold: First, the VA medical research system is an important part of the Nation's overall biomedical research effort, which is contributing more and more successfully to reducing disability and premature death.

Certainly, the most cost-effective way to reduce the cost of medical care is to reduce disease.

Second, the VA has a unique opportunity to study certain medical problems of national importance because of their organization. Important examples in the recent past include the major studies on implications of blood pressure control in the reduction of strokes; in addition, in the role of coronary bypass surgery.

Third, a healthy Medical Research Service keeps the highest quality physicians on the VA's staffs, which is vital if we are to guarantee our qualified veterans the best possible medical care.

The VA Medical Research Service. First, the Medical Research Service supports research primarily by clinical investigators. Indeed, the VA supports more clinical investigators than the entire NIH, even though the budget is tiny in comparison. It is crucial to our biomedical research enterprise that we have a significant number of physicians in medical research to promote focus on human disease and the rapid transfer of knowledge to and from the bedside.

In summary, the American Heart Association encourages you to maintain the VA medical research budget with inflationary adjustments and to consider the need for research facilities. This program is a unique resource to the American biomedical research effort, in spite of its very small budget. Furthermore, it greatly strengthens the VA medical care system, which is important to a larger and larger part of our population.

Thank you very much for the opportunity to speak about the VA budget. I would be delighted to try to respond to some questions.

Senator GARN. Thank you, doctor. We appreciate your willingness to testify. I am sure you have heard many of the comments and understand our difficulties. I wish somehow we could reduce that deficit so we didn't have all of these problems, particularly with some of the smaller discretionary programs, but we do appreciate your testimony.

[The statement follows:]

STATEMENT OF HARRY FOZZARD, M.D., MEMBER, BOARD OF DIRECTORS, AMERICAN HEART ASSOCIATION

Mr. Chairman, I am Dr. Harry Fozzard, Professor of Medical Sciences at the Univesity of Chicago. I appear today on behalf of the American Heart Association -- its 120,000 volunteers, 40,000 scientific members and over two million program and fundraising volunteers. As a member of the AHA's Board of Directors, I am very pleased to have this opportunity to offer the following comments and funding recommendations regarding the Veterans Administration's Medical Research Service (MRS) program.

The American Heart Association is one of the Nation's largest voluntary health organizations and the only one which dedicates all of its human and financial resources to the mission of the reduction of premature death and disability due to cardiovascular disease. In seeking to fulfill this mission, we have made the support of biomedical research our number one priority. Since 1949, AHA has invested over $565 million in scientific research, hundreds of millions in updating medical skills that improve patient care, in public education, and in community service programs. Today AHA devotes over 30% of its budget to research into the causes, prevention and treatment of heart disease, stroke and related disorders -- we will award approximately $50 million in research grants this year.

Cardiovascular disease is this Nation's number one cause of death -- almost as many people will die from heart disease in 1985 as from cancer, accidents and all other causes of death combined. Over 43.5 million Americans have one or more forms of cardiovascular disease. Of the 1.5 million individuals that will have heart attacks in 1985, approximately 500,000 will die. High blood pressure afflicts an estimated 60 million adults. And 500,000 individuals will suffer a stroke in 1985. The total economic cost of cardiovascular disease in 1985 will reach $72 billion for medical treatment, lost salaries, rehiring and training and insurance and disability claims.

As alarming as these statistics may be, there are some positive trends as well. Since 1968 -- due in large part to scientific advances made in the past three decades -- death rates due to cardiovascular disease have been on the decline. The death rate from coronary heart disease has decreased by 32 percent. The death rate from stroke has plummeted by 46 percent. The death rate for all cardiovascular diseases has decreased by 33 percent. During this same period, the death rate from all other diseases decreased by only 13 percent.

There are many reasons for these encouraging trends: a greater stress on preventive medicine; a higher level of awareness and concern on the part of the general public regarding healthy lifestyles; and most importantly, remarkable research breakthroughs in the cardiovascular field, and the translation of these important findings into clinical practice. These research advances not only save lives and improve medical treatment of patients with cardiovascular disease, but result in a significant savings of tax dollars as well. It has been estimated that for each dollar spent in biomedical research, there is a return of $10 to $16 in reduced illness and medical costs due to increased life expectancy.

The Veterans Administration Medical Research Service (MRS) program, and in particular its cardiovascular research support, makes up a small portion of the overall VA budget, however, we believe that it deserves the strong support of the AHA and the Congress as well. While the primary purpose of the VA health care system as a whole is the provision of high quality health care services to eligible veterans, the research supported by the VA Department of Medicine and Surgery is part of the total health care system of this country -- discoveries resulting from VA-supported research benefit science and this Nation's health as a whole.

The Administration's FY 1986 budget includes $160.9 million for the VA MRS program, a 2.7 percent decrease in the FY 1985 funding level of $165.3 million. This proposed reduction affects all components of the MRS program of concern to AHA:

- Investigator-Initiated Research: this program supports approximately 1,800 investigators and constitutes 75 percent of the MRS budget. Eligible VA staff members submit grant proposals which first are reviewed locally by an institution's R&D Committee and second reviewed by one of the VA Central Office's 14 VA Merit Review Boards. Under the President's budget, this program would be cut by 1.6 percent.

o Cooperative Studies Program: currently, this program supports 25 clinical trials and it provides a mechanism whereby studies on the effectiveness of diagnostic or therapeutic techniques can achieve statistically signficiant results by pooling data on patients from a number of VA hospitals. Proposals are developed by teams of VA clinicians and biostatisticians and are evaluated by the Cooperative Studies Evaluation Committee. Many landmark clinical trials in the cardiovascular field (e.g., studies in hypertension treatment and coronary artery bypass surgery studies) have been supported by the VA under this mechanism. The President's budget would require that this program mechanism be reduced by 6.3 percent.

o Career Development Awards: this program supports approximately 180 clinician scientists who spend the majority of their efforts on medical research. Applications for the several different career development awards are reviewed both locally and by the VA Central Office. This program is highly competative and only 30 - 40 percent of the approved applications can be funded. Under the

Administration's budget, career development awards would be reduced by 7.2 percent.

AHA believes that these proposed reductions are short-sighted in light of the fact that VA research in the area of cardiovascular disease is an integral part of the overall scientific effort in this field.

Some key areas of cardiovascular research in which the VA is working include: investigations into the understanding and treatment of hypertension; the study of new and established anitarrhythmic drugs; basic and clinical electrophysiology; the study of alcohol's effect on cardiovascular disorders; the clinical application of new techniques of myocardial scintigraphy; the study of the role of coronary artery bypass surgery in coronary artery disease; and further investigation regarding the understanding and treatment of congestive heart failure.

As is evident, the emphasis of VA cardiovascular research is clinical in nature. The VA supports more clinical researchers and more M.D. principle investigators than the NIH as a whole. Thus, the VA assumes a unique role in the research community because of its ability to translate immediately basic research findings into the VA clincial practice setting.

The VA is less unique in that is suffers many of the same problems that pervade the entire research community: mainly obsolete research equipment and out-dated laboratory and animal care facilities in which to conduct state-of-the-art research. Although funds for these items are not included in the MRS portion of the VA's budget, we urge the Subcommittee to give consideration to appropriating increased funds for renovation, construction and instrumentation for all VA research facilities.

Another unique aspect of the VA MRS program is that it is subject to limits on the number of clinicians it can employ in its VA facilities around the country. Therefore, only a fixed number of individuals can apply for research grants, although the number of applications has grown slightly over the last five years. This is highly signficiant in terms of the need for increasing the available funds for research -- decreases in funding or even slight increases to account for inflation are insufficient to fund all of the approved VA research applications -- although 62% of VA research applications are approved each year, only half of those approved are actually awarded because of the lack of available funds.

Proposed personnel reductions for the VA Central Office included in the President's budget will have a negative impact on the VA's ability to administer its biomedical research program. AHA understands that the MRS program has been slated to receive a disproportionate number of the overall proposed reductions. In order to administer and oversee a successfull research grants program, the VA Central Office must be provided with the necessary and proper resources to accomplish their mission. We urge the Subcommittee to ensure maintenance of current staffing levels for the Central Office MRS program.

Last year, Congress had the wisdom to provide a 12 percent increase for the VA MRS program. The AHA is keenly aware of the need for fiscal restraint, however, we are concerned about the potential negative long-range effects on the health of the Nation if cutbacks in biomedical research are made in FY 1986. Therefore, we recommend an appropriation of $186 million for FY 1986 for the VA Medical Research Service program. An appropriation of this amount will allow for an overall increase of 10 percent for the biomedical research activities of the VA.

The American Heart Association firmly believes that today's investment in biomedical research will lead to great future returns -- further decreases in death rates due to heart disease and stroke; reduced federal outlays for hospital and long-term care expenses; a well-trained cadre of biomedical researchers; and a more healthy and productive society. A 10 percent increase in VA research funds would continue current research momentum in cardiovasular disease within the VA and assist in maintaining the VA's vital role in the overall scientific effort in this field.

We thank you for the opportunity to appear before your Subcommittee and I will be happy to answer any questions you may have.

STATEMENT OF RICHARD G. LESTER, M.D., DEAN, EASTERN VIRGINIA MEDICAL SCHOOL, ON BEHALF OF ASSOCIATION OF AMERICAN MEDICAL COLLEGES

Senator GARN. Next, Dr. Richard G. Lester.

Dr. LESTER. Thank you, Mr. Chairman.

My name is Richard Lester. I am a physician, the dean of the Eastern Virginia Medical School, and a veteran. I am pleased to be here to speak on behalf of the Association of American Medical Colleges on the fiscal 1986 appropriations for the Veterans Administration. With your permission, I would like to summarize my statement and submit the full version for the record.

Senator GARN. Certainly.

VA MEDICAL CARE

Dr. LESTER. Thank you, sir.

Mr. Chairman, the AAMC finds the President's proposed fiscal year 1986 budget for the VA to be grossly inadequate. In our opinion, it will not allow the VA to maintain even its current level of services and will certainly prohibit the clearly needed program improvements.

The ASMC has the following concerns for the funding and staffing levels proposed by the administration for the medical care, research, and construction programs of fiscal 1986.

First, medical care itself is targeted for a 2.6-percent increase over 1985 levels, despite projections from a number of our sources that the number of aging veterans 65 years old seeking VA health care will increase significantly now and over the next two decades.

In constant dollars, the medical care budget has not increased in 8 years, though the VA's workload has been on the rise over the same period and over this period, there has been a 1 million increase in the number of visits to the VA without a real increase in the budget.

The AAMC questions how the VA will be able to maintain its efficiency if funding remains constant while workload continues to increase as anticipated.

Although administration documents purport to reveal a net increase of 199 employees for medical care in fiscal 1986, we have found that the OMB's so-called 1-percent productivity assessment alone will result in a reduction of amost 10,000 employees over the next 5 years. The pending administration proposals for a means test, and third-party reimbursement for VA-sponsored care also tend to at least give the appearance of transforming the VA medical system into a chronic care system of last resort where veterans will be forced to spend down to poverty levels before being entitled to VA medical care.

The already low VA staffing ratio of employees will decrease at 2.68 in fiscal 1986. The comparable ratio in non-Federal hospitals averaged 4.95 in 1983. Those are the last years we have data for, but this is a striking difference.

As you know, no additional funds are proposed for the 10 GREC's. Those are the Geristric [illegible] Education and Care Programs in the

VA. It is a very innovative program, I might add. But no additional funds are proposed for these GREC's to allow them to expand their vital research in such relevant areas to the veterans as the aging process, memory loss, and Alzheimer's disease. The administration proposals to slash the VA research budget by 2 percent and 157 employees, we believe this is very unwise in view: One, of the striking and exciting research being done in VA installations and also in view of the 22-percent increase in research and development in the Defense Department. On average, we calculate a 12-percent increase in research and development for Government agencies as a whole for fiscal 1986.

In addition, the historically underfunded VA construction program is targeted for a 16-percent reduction, which would delay several innovative replacement projects, limit patient usage in some areas, and increase the difficulties in recruiting and retaining competent staff. Because of these concerns and others that we have outlined in the written statement, we recommend that the VA medical care budget be increased by $708 million over fiscal 1985 levels to a total of $9.6 billion to allow the VA to actually fulfill its medical mission.

MEDICAL RESEARCH AND CONSTRUCTION

We also recommend that the VA research budget be increased by $15 to $207 million to more closely approximate R&D increases in other Government agencies and to allow the VA to expand its research capabilities.

And we recommend that the cutbacks in the VA's construction budget be restored so that the VA will have the facilities and the equipment necessary to provide high-quality medical care to all veterans and to recruit and maintain competent medical staff.

In conclusion, Mr. Chairman, the AAMC believes that the President's proposed VA budget for fiscal 1986 fails seriously in anticipating the needs of an aging veteran population that will be seeking more VA health care in the coming decades and will not allow the VA to maintain even its current level of services. As a consequences, we see the administration's proposed funding and staff reduction as a first step toward a potential dismantling of the VA medical care system.

We respectfully request the subcommittee's assistance in opposing these drastic budget measures that we believe would permanently alter the character of the VA.

This concludes my statement. I would be happy to answer any questions, if you have any.

Senator GARN. Doctor, let me ask you the same question I asked Mr. Coan: Where do we balance the budget? Again, I am not picking on you personally. But grossly inadequate, irresponsible, that is all I have heard for the last 2 or 3 months about the budget. By the same token, everybody says, "Good Lord, we have got to do something about $250 billion deficits."

Dr. LESTER. I will speak as a citizen. Quite clearly, you need to do something about budget deficits, and I believe every American believes that. Our brief is that the VA situation is a relatively modest one, that in the total mix that the needs of our veterans can be protected while the budget is also adjusted. I think everyone recognizes that.

Senator GARN. But if you are asking for more billions just like Mr. Coan, he can make just as strong a case for the underprivileged as you make for veterans. In some cases, they are both the same people. They are underprivileged, below the poverty level, low or moderate income, and they also happen to be veterans.

Dr. LESTER. Yes, sir; I hear you, Senator.

Senator GARN. They are also social security recipients. A 2-percent increase isn't sufficient, and we go on and on and on. And the testimony in every subcommittee in appropriations is the same. "This is irresponsible; we have got to have more."

What you are talking about collectively is not any decrease in the deficit, it is a massive increase if we granted every request and said, "We can't do any of these things."

In the 10 years I have been here, I have never been quite as frustrated. I am not here to argue with you on the need. I am talking about an incredible problem that everybody wants solved except on somebody else's back. I don't know how to deal with that.

Dr. LESTER. I would say I think the collective wisdom of the Houses of Congress obviously has to address the issue. Our point is to present what we believe is a modest series of requests for the soaring problem.

Senator GARN. I understand everybody thinks the request is modest and everybody thinks their program is important.

Dr. LESTER. I wouldn't say it it as important. I would say it is an important program. I would hope——

Senator GARN. It is an important program.

Dr. LESTER [continuing]. That you will look at it carefully.

Senator GARN. It is an important program. We will look at all of them carefully. But we have a $1.7 trillion national debt. Of that debt, $130 billion is interest on past deficit spending. We don't have that big a deficit in current accounts, on programs, only a little old $70 billion. John Kennedy ran the entire country 23 years ago, in 1962, for $140 to $150 billion, something like that.

Now we have interest of $130 billion alone. Yet everybody's testimony is that they need more, but "We want a balanced budget."

Again, I am not picking on you any more than I was on Mr. Coan. I just don't know the answer. I am just becoming more baffled all the time of how to solve this problem. There has got to be some consistency in this, and nobody is willing to take any cuts in their budgets to achieve it; no one.

There is somebody in my State, as an example, who is for every piece of the Federal budget, every piece of it. But their opening statement when they come into my private office is:

> Jake, we are proud of you. You just keep doing a good job representing us but this is different, more important than others. We don't ask you to increase it. We certainly don't want you to cut it, but you keep working toward that balanced budget.

I have absolutely no solutions to the problem unless people are willing to share across the board. As strongly as I feel about national defense and think it is underfunded, even super-hawk Jake Garn is willing to vote for a freeze, a 1-year freeze, no adjustment for inflation, if we would do that across the board in every budget. If I thought that was going to happen, I would also start putting teeth under my pillow for the tooth fairy to leave my money to solve my personal problems.

Dr. LESTER. I just say, Mr. Garn, that the President's proposal is not a freeze. The President's proposal is an effective decrease in the Veterans Administrations medical budget, and we think that is unwarranted.

Senator GARN. Let me ask you one more question that is more to the point. You talk about the construction program being historically inadequate. When will we get recommendations from your group or others for cleanup of the construction program? Because it may be underfunded, but I don't think it would have been had we not had so much colossal waste in the veterans programs, and we can start right in the Veterans Administration's hospital right in Salt Lake City that I had to have investigated. I can show you example after example where we could have built brand new hospitals. That priority list was just the unbelievable waste in construction.

Dr. LESTER. I have seen some of that, and I agree with that. Obviously, it has been our venue to have seen it. I think the point is well taken, and I will carry that back to our organization to take a look at that.

Senator GARN. I would like to see the Veterans Administration—and I think I will put it out next year when they come back—I would like their viewpoint on how we can make it more efficient rather than just asking for more dollars; how can we make it more efficient. I won't take your time, but I could go on and on showing you examples of an overhead passageway connected between two sections of a hospital that a wheelchair patient would never be able to get up it because it was built in such an incline in one direction; the other, they would have the most exciting ride of their life. It really is bad what has gone on in the construction program.

Dr. LESTER. I don't disagree with that at all.

Senator GARN. Billions of dollars wasted over those years that should have been put into buildings, into areas where the veterans' population was high, somewhere the need was great, and where they were building hospital beds and not parking lots and not skyways with a pitch that a wheelchair patient wouldn't dare go down and didn't have the muscle power to get up.

Thank you very much.

Dr. LESTER. Thank you, sir.

[CLERK'S NOTE: A letter from Senator Garn to the Association of American Medical Colleges and the association's response are provided on pages —— after the May 2 testimony.]

[The statement follows:]

STATEMENT OF RICHARD G. LESTER, M.D., DEAN, EASTERN VIRGINIA MEDICAL SCHOOL, ON BEHALF OF ASSOCIATION OF AMERICAN MEDICAL COLLEGES

The Association of American Medical Colleges (AAMC) appreciates the opportunity to appear before this Subcommittee during its deliberations on the FY 1986 appropriations for the Veterans Administration.

As you may know, the AAMC serves as the national representative for: all of this nation's 127 medical schools, many of which have strong and vital affiliations with VA hospitals; more than 400 teaching hospitals, including 74 VA hospitals; and over 70 academic societies whose members are engaged in undergraduate and graduate medical education, in patient care, and in biomedical and behavioral research.

Our constituents' strong interest in virtually all matters affecting the Department of Medicine and Surgery (DM&S) of the VA stem from the highly productive relationships that have developed between our medical schools and VA hospitals since the end of World War II. Affiliations encompassing patient care, medical education and research are currently in force between 101 medical schools and 133 VA facilities. It is widely held that these affiliations have been extremely rewarding for both the medical schools and the VA hospitals. The academic atmosphere created by these affiliations has enabled the VA to recruit and retain highly competent health professionals, thereby improving the quality of care provided to our nation's veterans. Of equal importance, the medical schools have enjoyed continuing scholarly stimulation from VA health professionals who often serve on medical school facilities. Finally, the important research undertaken jointly by both entities has advanced medical science in general as well as significantly extended knowledge regarding health problems unique to the veteran population. As a result of this arrangement, the AAMC is keenly aware of the problems facing the VA medical care system, and is therefore deeply disturbed by the Administration's proposed level of funding and personnel for the DM&S in FY 86.

At the outset, it should be pointed out that the AAMC is cognizant of the serious Federal budgetary problems plaguing the country at the present time, and we agree that waste should be eliminated in all Federal agencies when indicated. However, it is the Association's sincere hope that efforts to control the growth of the Federal deficit will not compromise the vital and successful VA medical programs upon which so many of our veterans depend for essential health care services. In light of the President's strong support for substantial increases in the Department of Defense, surely the VA's medical care system could be viewed as delayed defense expenditures and should be spared the types of unjustified reductions that have been proposed.

The President's proposed budget for the DM&S of the Veterans Administration is, quite frankly, shocking. Hidden behind the budgetary figures and justifications are further reductions in funding and personnel that are not readily apparent at first glance. If enacted, these reductions could deal a serious blow to the VA's ability to maintain even its current level of services to a population increasing in age and in need for medical care, and may encourage the most highly qualified and motivated of VA personnel to seek employment outside of the Federal government where immunity from the budgetary mayhem of the Office of Management and Budget (OMB) can be assured.

The need for funding and personnel support for the VA's medical care system has never been greater. As you all are aware, the VA is facing a major challenge in the coming decades -- a rapidly rising population of elderly veterans. A recent survey conducted by Louis Harris and Associates, Inc. concluded that 4.6 million veterans, or 15 percent of the total veteran population, were 65 years of age or older in September, 1984. By the year 2000, it is anticipated that 37 percent of all veterans will be 65 or over and 16 percent will be 75 or over. Because elderly patients tend to require and consume relatively more health services and rarely have a viable alternative to hospital care, the VA medical care system is faced with a significant, growing demand for health care. The President's budget, however, does not reflect this demand, and, on the contrary, would serve to even further reduce the VA's ability to meet the challenge.

Medical Care

The President has requested $9.1 billion in FY 86 for the medical care program, an increase of only $236 million, or 2.6 percent, over the FY 85 estimated budget. A substantial portion of this meager 2.6 percent increase is due to allocations that are considered "uncontrollable" such as inflation, pay adjustments, etc., and allows the VA Chief Medical Director little flexibility in enhancing or adding to existing VA medical programs in order to meet the needs of veterans. In constant dollars, the medical care budget has not increased in 8 years, and does not even nearly approximate the rate of growth in other Federal medical programs such as Medicare, which is slated for an FY 86 increase of either 3 or 8 percent, depending upon whether certain proposed Medicare reduction initiatives are enacted by Congress or promulgated through regulations.

Of even greater concern to the AAMC are the significant reductions in Full-Time Employee Equivalents (FTEEs) proposed for the medical care program by the Administration. Though the President's budget estimates a net addition of 199 FTEEs in the medical care program in FY 86, our own analysis reveals an alarming reduction of over 10,000 FTEEs over the next five years. There are many factors leading to this conclusion.

First, Congress mandated in the FY 85 VA appropriation (P.L. 98-371) that the VA medical staffing level should be 193,941 FTEEs. However, during that year, the VA was forced to absorb $106.7 million to cover statutory pay adjustments. OMB subsequently "determined" that VA medical care workloads could be adequately fulfilled with an employment level of 191,849, a reduction of 2,092 FTEEs from the congressional mandate. For FY 86, the Administration has requested a staffing level of 192,048, a reduction of 1,893 FTEEs from the 1985 congressional mandate. The budget justification book ironically states "This employment level provides a better balanced program, while allowing the Agency to meet its workload objectives and treat patients with the most efficient utilization of personnel and other resources."

Second, the VA medical care budget assumes a 5 percent across-the-board pay cut for its employees. Should Congress refuse to enact this misguided proposal, the VA would be forced to come up with the money elsewhere to make up the difference, which would be approximately $203 million.

Third, the FY 1986 budget contains OMB's far-reaching government-wide 1 percent "productivity assessment," which is an employment reduction applied across the board for five years to all programs in the VA. The AAMC heartily objects to this 1 percent staffing reduction which apparently has no other rationale than to conserve Federal dollars. The disastrous snowball effect of this proposal becomes patently obvious when one calculates the number of FTEEs that would be affected by it over the next five years. The FY 86 budget request for 192,048 FTEEs already incorporates the 1 percent reduction. Therefore, in FY 87, medical care personnel would be reduced by 1 percent off the top or 1920 FTEEs. The starting point for determining the personnel level for FY 88 would be 99 percent of the personnel in the FY 87 budget, and likewise for FY 89 and FY 90. Adding all of these reductions from FY 86 to FY 90, this productivity assessment will result in an overall reduction over the next five years of 9,483 FTEEs, leaving a total of 184,481 FTEEs to manage the entire VA medical system in FY 90. OMB apparently hopes to achieve enhanced productivity and increased savings, albeit through extremely artificial means. The AAMC would argue that such a reckless proposal, along with proposals emanating from the notorious Grace Commission report to increase contracting out of many VA services is the first step toward a dismantling of the VA medical care system.

The AAMC has other grave concerns regarding the impact of the proposed-budget for VA medical care:

- o The Administration proposes that the staffing ratio of FTEE per census in the medical bed sections of VA medical centers will decrease by .01 percent from an estimated 2.69 ratio in FY 85 to 2.68 in FY 86. This reduction, although slight, is indicative of the more significant problem that FTEE/census ratios in VA hospitals are almost half that of FTEE/census ratios in non-federal hospitals, which averaged 4.95 in 1983.

- The FY 86 budget contains proposals to convert approximately 440 acute care beds into intermediate hospital care and nursing home beds. Such action will result in a reduction of $7.8 million and 220 FTEEs. OMB apparently assumes that if the VA can encourage its hospitals to reduce their operating bed capacity by decreasing lengths of stay and other productivity enhancements, then those beds made vacant through increased productivity can be converted to nursing home beds and staffed out of the same pool of FTEEs. Though the AAMC recognizes the growing need for chronic care beds to accommodate the growing aging veterans population, we believe that this method of "internal redistribution" will only serve as a negative incentive for productivity since the end result would be a mere conversion of beds with no additional funding or FTEEs to pick up the slack.

- The President also proposes to reduce the number of VA acute care beds by 2,169 from that contained in the original FY 85 budget, a potential violation of current law that requires the VA to operate and maintain a minimum of 90,000 hospital and nursing home beds. Such a drastic reduction in the number of acute care beds illustrates, in our opinion, a policy decision to transform the VA medical care system into a chronic medical care system, a warehouse for elderly veterans. Indeed, the Louis Harris survey found that age-specific morbidity is increasing among young veterans and that younger veterans are beginning to use VA hospitals at an earlier age than their older counterparts. The report argues that the increase in demand for medical care will be greater than the projections based on past utilization measures and may have to be revised upward. Additionally, the VA's own report published in 1984, "Caring for the Older Veteran" sets forth the following goal for VA hospital strategy: "To provide sufficient capacity...to assure availabiltiy and accessiblity of needed high quality inpatient acute care services to all eligible elderly veterans." In light of these findings and goals, the AAMC doubts the wisdom of drastically reducing the number of acute care beds in the VA's medical care system as proposed by the Administration.

- The FY 86 budget also contains no new funds to continue vital training and research at Geriatric Research, Education, and Clinical Centers (GRECCs). The GRECC program, now with 10 centers, plays a significant role in developing innovative approaches to caring for the elderly, and has helped to bridge the gap of the historic reluctance among health care professionals to specialize in geriatric medicine, research and education. The GRECC program, through research and education combined with clinical practice, has been involved in such important areas to aging veterans as the cardiomyopathy of aging, age-related modifications in glucose-insulin metabolism, memory loss, Parkinson's disease, Alzheimer's disease other organic dementias. The AAMC believes it would be sound policy to increase funding and personnel for CRECCs, given the relative scarcity and need for geriatric research.

- Drug and medicine procurement for FY 86 is slated for an increase of 8.4 percent over 1985 figures. Replacement of equipment is scheduled for an increase of 4.5 percent and the purchase of new equipment will increase by only 7.5 percent. The AAMC doubts that these increases will be sufficient to accommodate the demand for new supplies and equipment that are emerging from biomedical research and biotechnology.

Education and Training

In addition to its primary goal of providing high-quality health care for its veterans, the DM&S, through its affiliations with medical schools, contributes significantly to the education and training of health professionals in many areas.

The AAMC was therefore extremely disturbed to learn that the Administration has proposed a meager increase in this program of $2.4 million, or less than 1 percent, over 1985 levels, coupled with a reduction of 28 FTEEs. To arrive at this $2.4 million net increase, $16.5 million was added to cover uncontrollable pay adjustments, and $251,000 and 4 FTEEs were earmarked for the expansion of the affiliation between the Murfreesboro VAMC and Meharry Medical School. However, these increases were offset by a $14.3 million and 32 FTEEs reduction resulting from the government-wide pay reduction and the 1 percent personnel productivity assessment. Even with the addition of 4 FTEEs in Murfreesboro, the average employment for physician housestaff for the overall VA system will decrease by 50 in FY 86. The AAMC opposes this reduction and fears the negative ramifications for the VA's education and training program if the cuts are enacted.

Before making a recommendation as to the appropriate level of funding for the VA's medical care budget, the AAMC would like to express reservation over another Administration proposal, not contained in the FY 86 budget, that could drastically alter the nature of the VA medical care system: the means test. This proposal would require all veterans, regardless of age, to spend a specified percentage of their income before being eligible for VA medical care. When considered along with the Administration's other proposals to require reimbursement from private insurance companies for VA-sponsored care, and to require those "higher income" veterans eligible for Medicare to seek Medicare coverage before obtaining VA medical benefits, it becomes obvious that the Administration and OMB anticipate that the VA will eventually become the "medical provider of last resort." Non-service-connected veterans making over $15,000 annually will be expected to "spend down to poverty" in the private sector before being entitled to receive VA medical care. The VA would become a chronic medical care system for those veterans who have exhausted all of their insurance and out-of-pocket contributions at private hospitals and are then transferred to VA nursing homes to receive chronic care. AAMC believes this shift in emphasis to chronic care could have a very detrimental effect on medical school affiliations, the VA's education and training program, and the entire VA medical care system as a whole.

After careful analysis of the proposed FY 86 budget, the AAMC would recommend that the VA's medical care budget be increased by $708 million over FY 85 levels to a total of $9.6 billion. Though this request exceeds the President's request by approximately $473 million, the AAMC believes the additional funding is necessary to allow the VA to fulfill its medical mission, and will allow a closer proportional approximation to HCFA's estimated cost increase for Medicare in FY 86.

Included in the AAMC's recommendation for this increase would be $203 million to restore the 5 percent across-the-board pay reduction and $52.4 million to restore the cuts resulting from the 1 percent productivity assessment, neither of which the AAMC believes is prudent for the VA when all sources project the biggest challenge the VA has ever faced in meeting the demands of an aging veteran population. Also included in this recommendation are sufficient funds to restore the 2,092 FTEEs that were originally mandated in the FY 85 VA appropriation but were subsequently "squeezed out" by OMB during 1985 in order to fund increased pay adjustments. The remainder of the increase would allow some additional funding for GRECCs, for education and training, and for new supplies and equipment. Increases in these areas would allow the VA to continue to conduct important research, provide better training for residents and to keep pace with medical progress and new technology -- all of which would serve to increase the quality of care and quality of life for our nation's veterans.

Medical and Prosthetic Research

The research and development component of the VA complements the medical care and education components of the VA's three-pronged effort to improve and maintain the quality of health care provided to veterans. The VA has established quite an enviable reputation throughout the world in the areas of biomedical, behavioral, rehabilitative and health services research, which are focused on the unique medical problems that characterize the veteran population. Additionally, the academic atmosphere created by the VA's dedication to its research function has attracted many highly qualified scholars, physicians and residents to VA facilities. The ultimate winner in this situation is the veteran, who can expect to receive continually improved medical care.

However, the VA's medical and prosthetic budget was not spared from significant budget reductions. The proposed FY 86 budget for this function is pegged at $187 million, a decrease of $5.3 million or 2 percent and 157 FTEEs from FY 1985. This translates directly into a reduction of 60 programs. The plight of the VA's research budget becomes even more poignant when one considers that the President has proposed a 22 percent increase in the Department of Defense R&D budget and a 12 percent increase for R&D government-wide in FY 86. Yet, as was the case with the VA medical care budget, in constant dollars, the VA's medical and prosthetic research budget has remained virtually the same for the past 11 years.

In addition, upon close examination it becomes evident that the Administration's estimated reduction of 157 FTEEs is incorrect. The 1985 appropriation provided funding for 4,625 FTEEs for the research account. Of that total, 55 FTEEs were provided to the DHHS for the CDC Agent Orange Epidemiology Study, leaving a remainder of 4,570 FTEEs. Since the President's budget request for FY 86 contains funding for only 4,348 FTEEs, the actual personnel reduction from 1985 for medical and prosthetic research is 222 FTEEs. Moreover, if the President's 5 percent pay cut proposal is enacted, and these funds are not replenished by Congress, then the VA research budget would be squeezed even further to come up with the additional 5 percent to make up the difference and fund salaries at current levels. In that case, the research program would lose another 70 individual programs for a total reduction of 130 individual programs.

Within the medical research function of the medical and prosthetic research budget, there are three programs of significant importance to the constituency of the AAMC that will be negatively impacted by the proposed reductions in FY 86. The Investigator-Initiated Research Program, which allows clinical staff to pursue research uniquely focused on disease problems which are most characteristic of the populations of veterans hospitals, is targeted for a $2 million and 100 FTEE reduction in FY 86. With such a drastic reduction, the VA will have to either compromise ongoing projects by underfunding each of them or eliminate any new starts for projects already approved by the Merit Review Board for funding.

The Career Development Program, which provides the VA with an opportunity to recruit young physicians who have recently completed formal training as well as physicians well on their way in their research careers, is also slated for a reduction in FY 86 of $1.1 million and 30 FTEEs, which is a decrease of approximately 8 percent from the FY 85 level. This reduction sends an unwelcome signal to the most talented physicians and researchers and may discourage them from pursuing research careers within the VA system. This is particularly distressing since experience has shown that physicians who enter the VA system through the career development program are likely to remain at the VA for a large proportion of their professional lives.

Finally, the Cooperative Studies Program, which is designed to allow two or more VA hospitals to jointly participate in a research study using a common protocol and allowing a pooling of the data collected, is scheduled for a 7 percent reduction from FY 85 levels, with cuts of $905,000 and 32 FTEEs. Because of the important studies that have been undertaken since 1946, the AAMC believes that this program should at least be funded at the current services level to allow ongoing projects to continue.

In order to preserve the high calibre of research being conducted in the VA's medical and prosthetic research program, and to ensure that this program can keep pace with medical progress in anticipation of an increasing aging veteran medical care demand, the AAMC recommends that the VA research budget be increased significantly to the same level as the R&D budgets in other government agencies (which averaged a 12 percent increase in the proposed FY 86 budget). Such an increase would allow the restoration of funds and personnel that were cut as a result of the 5 percent pay cut and the 1 percent productivity assessment, and would allow sufficient staffing to meet congressional mandates. More importantly, however, the increased funding would allow: approved research programs to receive the level of funding recommended by the Merit Review Board; an increase in the employment levels and the size of the pool of physicians that could be expected to stay with the VA throughout their careers; and improvement in the quality of health care delivered to the veteran population in the short-term and the entire elderly population in the long-term.

Construction

The quality of health care delivered to a veteran is as dependent on the availability of up-to-date facilities and equipment as it is on the skills of the attending physician. However, the President has proposed a substantial reduction of 16 percent from 1985 levels for the VA's construction budget. Such drastic cutbacks will delay several major renovation and replacement projects otherwise planned, while the inflationary impact of delaying construction drives the costs of these projects even higher. These delays may therefore impair the ability of the VA to up-grade the quality of health care delivered to veterans in certain geographic areas. Many VA facilities are outdated, and more than a few do not have comparable high-technology diagnostic and therapeutic equipment.

Due to the anticipated escalation of aging veterans seeking VA health care until the year 2,000, the AAMC believes it is necessary to provide funding now for renovation and replacement of VA facilities, since sub-standard facilities not only hamper patient usage in some areas, but also increase the difficulties in recruiting and retaining competent medical staff.

In "Caring for the Older Veteran," the VA projects that "Construction to meet all of the estimated 1990 service needs would require an increase of up to 140 percent in VA hospital beds, and an increase of up to 10 percent in VA-operated long-term care beds during the five years after 1995." Though the VA also notes that construction to meet this demand could soon result in many empty VA beds as the demand begins to taper off after 2010, the AAMC believes that the projections of need for the near-term are indicative of the growing necessity to update and renovate facilities and purchase modern equipment as soon as possible in order to be ready to address the forthcoming policy decisions on "Caring for the Older Veteran."

The AAMC appreciates the opportunity to present its views on this important issue, and respectfully requests your favorable consideration of our recommendations for increased funding for the VA's medical care system.

STATEMENTS OF:

PAUL S. EGAN, EXECUTIVE DIRECTOR, NATIONAL LEGISLATIVE COMMISSION, THE AMERICAN LEGION

JOHN F. SOMMER, JR., DEPUTY DIRECTOR, NATIONAL VETERANS AFFAIRS AND REHABILITATION COMMISSION, THE AMERICAN LEGION

Senator GARN. Is Mr. Paul Egan here? And John F. Sommer, Jr.?

Mr. Egan, please proceed.

Mr. EGAN. Mr. Chairman, Mr. Sommer, our deputy director of rehabilitation, will summarize our statement. Just to comment, I think we have to say we agree with you with some of the problems with the VA's construction budget, and for that very reason, we are supporting a provision of legislation that would establish a study group consisting of individuals from the private sector as well as the VA and the veterans' community to examine the process by which the VA plans for construction. We think that that should yield some suggestions on how to more efficiently build hospitals.

Mr. SOMMER. Mr. Chairman, the American Legion certainly appreciates this opportunity to present its views on appropriations for veterans' benefits and services for fiscal year 1986. Due to the necessary time constraints, we will limit our remarks to areas of concern that we have identified in the proposal.

DEPARTMENT OF VETERANS BENEFITS

The first issue identified in the budget proposal that gives rise for concern is the planned reorganization and consolidation of field office functions of the Department of Veterans Benefits that was initiated by the Office of Management and Budget. The Veterans Administration is beginning to implement the plan to consolidate DVB benefit and support activities into three regional centers. Activities included would be adjudication of compensation, pension and education claims, loan processing and support services, finance and personnel functions. The proposed consolidation would be carried out over 3 fiscal years, 1986 through 1989, at a cost of $85 million.

This concept would eliminate direct service to veterans who are attempting to develop claims for benefits by denying the claimant the opportunity to present his or her claim in person and with the assistance of a veterans' service organization. The American Legion is totally opposed to the planned reorganization and consolidation as we consider it neither reasonable nor practical.

Another matter with which we are concerned that falls within the Department of Veterans Benefits is the proposed increase in the home loan origination fee. The administration proposal called for an increase from the current 1 to 5 percent on all guaranteed loans. The Senate-administration deficit reduction plan proposes that increased be phased in from the current 1 percent fee to 3.8 percent by 1988. The fee would rise 2 percent in 1986, 2.6 percent in 1987, and 3.8 percent in 1988. According to available figures from the Mortgage Bankers Association, a 5-percent increase would freeze 850,000 eligible individuals out of the

VA Home Loan Program and an increase of 3.8 percent would freeze out 510.000 veterans.

To assume that savings are going to be achieved based on these statistics is inaccurate. The increase in the origination fee will cause additional problems for the program because of greatly reduced participation. We recognize that the Congressional Budget Office predicts that no new appropriations would be needed in fiscal year 1986, and we doubt that that is correct.

DEPARTMENT OF MEDICINE AND SURGERY

In the Department of Medicine and Surgery, an issue of extreme concern to the American Legion is the grade 11 through 15 reduction initiative. The American Legion's primary concern is the fate of the Department of Medicine and Surgery and its ability to provide quality medical care absent its total exemption from the initiative.

We have been assessing the impact of the initiative since early 1984. American Legion field representatives are hearing horror stories from management officials during their site visits to VA medical centers about the difficulties that are being incurred as a result of reductions.

Not only is the reduction initiative eliminating positions necessary for the provision of health care, but it is also causing adjunct problems. Employees hired in grades below 11 are not being promoted. Aside from negatively affecting the morale of individuals currently employed in these provisions, it is hampering the ability of VA to recruit and employ new employees in vacancies for positions graded just below the targeted position because of the limited to nonexistent possibility of promotion for an indefinite period of time.

We understand that that is particularly true with respect to recruiting pharmacists, social workers, and psychologists at several medical centers. After much coaxing, the Administrator did request the exclusion of title 38 positions in the Department of Medicine and Surgery, the majority of which are physicians and nurses, from the reduction initiative. The request was granted by OMB, but the funds were not restored in the fiscal year 1985 budget to support these positions.

The grade 11 through 15 positions under title V are now left vulnerable to the 2-percent per year reduction. As we predicted over a year ago, the Department of Medicine and Surgery is now reeling under the impact of the initiative. The situation is becoming critical and without substantial relief, it can do nothing but get worse. It appears that congressional intervention will be the only possible salvation of the VA health care program, and we urge that this subcommittee promptly lend serious consideration to such intervention before irreparable damage is brought upon the VA medical care system.

MEANS TEST

The American Legion is opposed to the implementation of a means test for non-service-connected veterans to receive medical care. We believe that a means test would prove to be ineffective, because available information shows that most of these veterans that use the system are old, sick, and poor. If forced out of the VA system, they would have to resort to medicare, medicaid, or to other publicly supported institutions. We earnestly suggest that before any consideration is given to this proposal, the Congress should require from VA an updated patient profile of the current patient population of the VA system.

If, as we believe, such a profile shows that the veterans using the system are overwhelmingly old and poor, then the question has to be answered: Why establish another administrative mechanism that will accomplish nothing?

THIRD-PARTY REIMBURSEMENT

We are opposed to the initiatives set forth by the administration that would effect reimbursement from third-party insurance carriers for costs of medical care provided veterans with non-service-connected disabilities. In essence, veterans would be paying for their VA medical care through medical premiums. If third-party reimbursement were implemented, the VA health care program would be changed in its essential nature from a benefit to a cost-sharing medical plan.

The projected savings expected to be gained from third-party reimbursement is $65 million. Quite frankly, we fail to see how this could be an accurate figure. We have heard statements made in the past by VA officials during congressional hearings to the effect that the administrative costs necessary to implement the mechanism for collection of insurance payments would probably exceed the costs that are covered.

Such reasoning seems logical when considering the majority of non-service-connected veterans using the VA system are probably not covered by insurance and that complicated problems involving cost formulas, quality controls and distribution of services would have to be resolved before third-party reimbursement legislation could be implemented.

NEW BALTIMORE HOSPITAL

Finally, the issue of a replacement hospital at Baltimore is an important one to us. The need has long been established, and we have seen evidence where veterans who could have benefited from in-patient treatment at the hospital in Baltimore had been placed in an ambulatory care program in order to meet, as well as possible, their medical needs.

We understand that the medical center has been forced to admit only those veterans suffering from the most severe, acute illnesses for which hospitalization is absolutely necessary.

In addition, we have learned that due to constraints on resources and space, major elective surgery cases have been delayed. The American Legion feels that a replacement hospital needs to be built and should be built, and we hope that the subcommittee will give this serious consideration.

Mr. Chairman, that concludes our summary, and we again thank you for this opportunity to present our views for the consideration of the subcommittee.

Senator GARN. Thank you.

On one point you mentioned, you are opposed to a means test on non-service-connected disabilities. Why should there be any veterans benefits for nonservice connected?

Mr. SOMMER. There are several reasons for that, as we see it, Mr. Chairman. No. 1, the people of the United States, through Congress, have historically provided this benefit to those individuals who served in military service as part of the package of veterans' benefits. In addition to that, the non-service-connected veterans are needed within the VA medical care system in order to provide the appropriate mix for the training and the research that goes on within the VA medical care system. If it were limited only to service-connected veterans, we foresee the loss of the affiliations with the medical schools that the Veterans Administration now has long-standing affiliations with.

Senator GARN. Still, just because we have done it, I mean—OK, I'm a veteran. But I have been off active duty, now, for 25 years last January. I volunteered. I served. Why am I owed anything 25 years later if I don't have some disability from the service that I performed back in the 1950's? I don't understand the concept, saying it is historical, we have done it before. If I am hurt while I was on active duty, that is a different story, but not years and years later. My father, who was a World War I veteran, was under the same situation. He had been out for 45 or 50 years before he needed anything. It is an incredible cost, and to say that it is required to maintain the affiliations, then what I am being told is we have a far bigger VA medical system than was needed to take care of the veterans who, because of their military service, had some disability they otherwise would not have had.

It is not going to go away, but this Senator, as a veteran, doesn't understand why the Veterans Administration has to take care of veterans that maybe have been out 25 to 50 years that had absolutely nothing to do with their service.

Mr. SOMMER. The American Legion feels that veterans should be afforded some special status for their service to their country. But in addition to that, our experience is that the individuals, the non-service-connected veterans that are using the VA medical care system are those in the 10 percent of the total veteran population in the lowest economic strata. If they were not being treated by the Veterans Administration, they would be forced to go into charity hospitals, in many cases, or in some other method of treatment that was paid for by the public. We would certainly much rather see them treated by the Veterans Administration.

One example would be medicare. If they were not treated by the Veterans Administration, they would be treated under medicare, which the average daily cost of care under medicare is higher than that under the Veterans Administration.

Mr. EGAN. I would like to add somthing, if I could, Mr. Chairman. First of all, for non-service-connected veterans, we are talking about space availability only. In other words, not just anybody who is nonservice connected who presents himself to a hospital is going to be taken care of.

Senator GARN. I understand, but the Veterans Administration is not supposed to be a welfare agency. I understand your point on the economic status, but there are other programs to take care of that. There are a lot of nonveterans who have great difficulties who are taken care of under some other program.

But I think we could do a better job for the veterans with a service-connected disability—and again this is an academic discussion—because I feel this way, it doesn't mean it is going to change. But I served my country voluntarily, was not hurt, was not injured. I started going bald. Maybe that was service connected. [Laughter.]

But that didn't happen while I was on active duty. I am looking at trying to find better care or doing a better job for those who we owe for service and for what happened to them while they were on service, rather than creating a welfare program.

It is almost like food stamps. Food stamps are in the Department of Agriculture. I am not here to argue the benefits or demerits of food stamps, but it is a welfare program, however you want to look at it. So what it does in the Department of Agriculture budget is, it robs traditional programs of meat and milk inspection and farm programs that they were intended to do, because they have got $12½ billion worth of food stamps. That ought to be over in HHS or someplace else.

If we are going to take care of those poor people, let's take care of them, but I'm not sure that the VA has any responsibility for those who are nonservice connected.

Please finish; I interrupted you.

Mr. EGAN. As advocates for poor veterans, we take the side of the veterans and to promote the veterans' interest whether they be service or nonservice connected. I think there is a larger public policy question at stake here. That is, what public good is derived from the existence of the medical affiliations with VA hospitals, and what public good derives from the training and research that goes on in VA medical facilities? If we can agree that there is some policy good that results from all that research, all that training, all of that education that goes on because of that mix of service connected and nonservice connected, then there is an additional point to look at before just assuming because someone hadn't been injured in service and had been out for 25 years, the issue isn't only what is owed to that individual.

Looking at a larger policy question, there is some legitimate good that comes from this.

Senator GARN. What you are telling me is, you used the term "mix," but it doesn't make any difference to the hospital how that disability or illness was incurred. You are talking about numbers. What you are telling me is you want a bigger system; you want more patients. Mix doesn't make any difference, how they got it or where they got it or during what time they got their disability.

What you are saying to me is you have got to have a bigger system now. That is why you need the non-service-connected disability.

Mr. EGAN. By mix I mean, for example, if you take that group of individuals who were injured and disabled in combat settings, you are going to find very homogeneous kinds of disabilities. But if you include non-service-connected veterans who are ill for a variety of other reasons, very few of which would involve combat-related kinds of disabilities, then you provide the physician in training with a mix of different kinds of things to be treating. That is what is meant by mix.

Senator GARN. I understand. I understand what you are saying, but you have also got a situation that has come up before in our hearings where you take some guy who suffered through 7 years of imprisonment in Vietnam or World War II or whatever, and some kid that is out riding his motorcycle on a weekend and never left the United States and injures himself, although on active duty, he has got the same benefits as that poor man who had his fingernails pulled out and was treated badly. I just think we spread it far too thin. We have created a far greater amount of bureaucracy than we should have. We don't do as good a job as we should for those who we truly owe a great debt of gratitude to for service and what the service did to them, because we are taking care of a lot of noncombat individuals. That is another issue, and a lot of them caused it themselves.

I have asked Harry Walters that very directly, and I was disappointed in the answer:

> It doesn't matter how it occurs, when they are on active duty, no matter how responsible they were for their own injuries, they are still entitled.

We have got $200 billion deficits. I have to start looking at some of these things again. I am not going to change it. Don't panic. I haven't got enough votes to do that. But I would if I could. Boy, I would make some differences there, I really could. I still think you might find out there would be some medical schools still affiliated with the VA.

I would like to hear you say we are playing a numbers game. I don't think you said that, but that is what it means to me. I don't think it makes any difference how the disease or disabilty was incurred, whether it is on or off service, the doctor says, "Aha, that one occurred off duty; that one is different than the one that occurred on," other than gunshot wounds and things of that nature.

I am keeping you too long, but I do appreciate your willingness to testify. I am not antiveteran as a veteran. I get accused of that at times, but I will repeat what I have gotten in trouble for before: There is a lot of waste in the Veterans Administration, which is the same thing I said to the doctor from medical school. Along with the recommendation for additional funding, I wish the veterans associations would come up with recommendations for more efficient service for veterans; how we could eliminate some of the construction problems and waste that you darn well know what I am talking about, and we can document that easily.

Mr. EGAN. We would know about a lot of that if we didn't have a full-time staff of people that go out and survey hospitals like the Salt

Lake Hospital, like the Bronx Hospital and some others around the country that——

Senator Garn. But it would be helpful when you testify when you want additional money and so on if you could tell us where we could find some of that by being more efficient, some areas where we could change, where we could eliminate, where we could improve a construction method and say, "Senator, we want more money. We found a billion dollars here for you in a system. You can transfer it out of these."

We don't very often get testimony of that kind.

Mr. Sommer. We have, Mr. Chairman, in the past, offered recommendations during congressional hearings with respect to the limitation of the number of changes in, for instance, A&E drawings by the VA, which, in just a few projects, the changes that many times are recommended and then recommended changed again run into the hundreds of thousands of dollars. We have recommended that the VA use more efficiencies in getting the drawings right to begin with and not making the changes which lead to these inflated costs of the hospitals.

Senator Garn. Thank you very much, gentlemen.

Mr. Egan. We appreciate your attention.

[The statement follows:]

STATEMENT OF PAUL S. EGAN, DEPUTY DIRECTOR, NATIONAL LEGISLATIVE COMMISSION, THE AMERICAN LEGION

The American Legion is appreciative of this opportunity to present its views on appropriations for Function 700 (Veterans Benefits and Services) for Fiscal Year 1986.

In its proposal submitted to Congress, the Administration has proposed for the Veterans Administration Budget Authority of almost $27.110 billion, down $123.6 million from FY 1985, and Budget outlays of nearly $26.729 billion, down over $82.3 million from FY 1985.

Before addressing specific items in the funding proposals it must be said that we are aware the Administration is seriously concerned about the ominous budgetary deficit that faces the Federal Government. Veterans have shared that concern and during the immediate three previous fiscal years have acceded to reductions in veterans programs that have amounted to, on the whole, more than $500 million. Most of these adjustments, when proposed, were accepted by The American Legion, because we represent the nation's veteran population, and veterans are responsible citizens. When all entitlement programs were being modified, we believed that veterans must do their share - and we have done just that.

Further, the portion of the total Federal Budget consumed by veterans programs has been steadily shrinking over the past ten years. In FY 1975 the VA Budget represented a full 5 percent of the total Federal expenditures; in FY 1981 - 3.2 percent, and in FY 1985 - 2.7 percent. Thus it cannot be said that veterans are receiving more than their fair share of total Federal dollars, when in fact just the contrary is true.

The American Legion is convinced that any further reductions in funding for veterans programs would prove seriously harmful to the most needy and deserving beneficiaries of programs administered by the Veterans Administration.

It has long been our firm conviction that when the national priorities for spending are established, veterans programs should rank second only to national defense. Americans are a responsible people, and The American Legion is a responsible organization. We have not, and will not seek from the Government, more than we believe are the just dues of the men and women who have answered the call of the elected Government, to defend the national interest in the Armed Forces.

The fact is, Mr. Chairman, The American Legion does not feel the proposed funding levels for FY 1986 are satisfactory to effectively carry out all of the programs administered by the Veterans Administration. The budget proposal provides no overall increase in spending, and contains initiatives that would adversely affect thousands of America's veterans, their dependents and survivors.

Mr. Chairman, in past years when commenting on Function 700 funding, we have been guided by the Report of the Committee on Veterans Affairs to the Committee on the Budget. However, because of the fact that the Veterans Affairs Committee submitted two reports to the Budget Committee containing the majority and minority recommendations; a Senate/Administration Deficit Reduction Plan has been formulated; and various other proposals have been forthcoming, we shall offer comment directed to areas of special concern we have identified through our own general oversight of the impact of veterans programs on those they are intended to serve. Reference will also be made to the Administration's proposal and the previously mentioned reports.

DEPARTMENT OF VETERANS BENEFITS

The direct benefit programs administered by VA through the Department of Veterans Benefits will consume 59.3% of the total VA Budget. These are, for the most part, the entitlement programs that must be funded, and they are meeting the real needs of the veteran population they are intended to serve. These benefits are currently administered through 59 regional offices.

The issue identified in the Budget proposal that gives rise for concern is the planned reorganization and consolidation of field office functions of the Department of Veterans Benefits, initiated by the Office of Management and Budget. The Veterans

Administration is beginning to implement the plan to consolidate DVB benefit and support activities into three regional centers. Activities included would be adjudication of compensation, pension and education claims; loan processing, and support services, including administrative, finance and personnel functions. The only services that would remain at the regional offices are veterans benefits counselors, vocational rehabilitation and counseling personnel, compliance survey, and some loan guaranty activities.

The proposed consolidation would be carried out over three fiscal years - 1986 through 1989 - at a cost of $85 million.

The proposed concept would eliminate direct service to veterans who are attempting to develop claims for benefits by denying the claimant the opportunity to present his or her claim in person, and with the assistance of a veterans service organization. The individual veteran needs and deserves this opportunity.

The American Legion is totally opposed to the planned reorganization and consolidation, as we consider it neither reasonable nor practical.

An additional, but congruent matter of concern is the proposed reduction of 624 FTEE in DVB. Although this loss of personnel is designated as "savings through consolidation" in the Budget Message, it is consistent with reductions of FTEE in the Department of Veterans Benefits over the past several years.

The proposed reduction would bring average employment in DVB down to 12,894. This loss is superimposed on previous reductions, through FY 1985, of 4,558 FTEE since FY 1979. We are concerned about the effect of these losses on delivery of services to VA beneficiaries. The timely delivery of benefits to veterans, their dependents and survivors is an important responsibility of the Department of Veterans Benefits, and the quality of work performed by personnel assigned to DVB, determines to a great extent whether beneficiaries do in fact receive the benefits to which they are entitled by law. Consistent and persistent reduction of personnel will inevitably impact on the ability of DVB staff to complete action on cases and disburse benefits. The American Legion's concern is projected from the standpoint that VA beneficiaries are either the service-disabled, their survivors, or the aged and infirm seeking pensions. All are persons who very much need the benefits they are seeking, many on an urgent basis.

Aside from the proposed consolidation, VA management attributes the reduction to declining work loads and management actions to reduce overhead and increase productivity. We respond that although the case load is in fact declining, the complexity of claims has increased due in part to issues such as the effects of exposure to Agent Orange and radiation, and the pathology of Post-Traumatic Stress Disorder, thus requiring more man hours per case. The Legion is certainly supportive of economy of personnel in management, and maximun productivity by all Federal employees. However, a certain minimum of personnel is needed to properly process cases, without delay-causing errors that have to be corrected; and productivity can only be used as a relative guide when considering the volume of paper work that must be done in the processing of a single case for award of benefits.

The American Legion urges that this Subcommittee lend serious consideration to the negative impact that the proposed consolidation and reorganization of the Department of Veterans Benefits would have on the delivery of benefits and services to veterans. Additionally, we believe that the Subcommittee should press for precise data and information from VA before effecting further loss of field personnel in DVB.

Another matter with which we are concerned that falls within the Department of Veterans Benefits is the proposed increase in the home loan origination fee. The Administration proposal called for an increase from the current 1 percent to 5 percent on all guaranteed ana vendee loans. The Senate/Administration Deficit Reduction Plan proposes that increases be phased in, from the current 1 percent fee to 3.8 percent by 1988. The fee would rise to 2 percent in 1986, 2.6 percent in 1987, and 3.8 percent in 1988.

According to available figures from the Mortgage Bankers Association, a 5 percent increase would freeze 850,000 eligible individuals out of the VA home loan program, and an increase of 3.8 percent would freeze out 510,000 veterans.

To assume that savings are going to be achieved, based on these statistics, is inaccurate. The increase in the origination fee will cause additional problems for the program because of greatly reduced participation. We recognize that the Congressional Budget Office predicts that no new appropriations would be needed in FY 1986, and we doubt that CBO is correct.

The American Legion has offered a six-point program to reform the VA Loan Guaranty operation. Part of our program would restore solvency to the Loan Guaranty Revolving Fund, by accelerating sales of foreclosed properties in the Veterans Administration's inventory. The accelerated sales of properties would allow VA to rebuild its portfolio of loans, which constitute the principal money generating assets that the agency needs to back its guarantee.

DEPARTMENT OF MEDICINE AND SURGERY

There is no question that the most sensitive area of the Budget for the Veterans Administration is the medical care program. This is because, unlike the entitlement programs that are statutory in nature, the strength and efficacy of the medical care program depends directly on the allocation of funds by Congress.

The Administration proposes more than $9 billion for medical programs in FY 1986, representing 35.5% of the total VA Budget. Although this is a projected increase of $236 million over FY 1985, much of this is consumed by normal payroll increases and inflation.

We note that the average employment in DM&S will increase in FY 1986, by 199 to 192,048. However, upon close examination of the figures for average employment we see included therein a reduction of 889 FTEE in existing medical centers, and the loss of 1,916 FTEE due to Government-wide and management reductions. The American Legion is opposed to any reduction that would impact on health care professionals. Based on our monitoring of the Department of Medicine and Surgery through site visits by Legion Field Representatives to more than 65 medical centers each year, we can attest that every one of the personnel assigned are needed. The staff to patient ratio in tertiary VA medical centers is lower than in private sector hospitals, and much lower than will be found in university hospitals.

With respect to personnel losses in DM&S, an issue of extreme concern to The American Legion is the grade 11 through 15 reduction initiative.

Without becoming emersed in rhetoric, the fact is the Grace Commission made a sweeping statement about the Federal Government having a profusion of positions in salary grades 11 through 15 as compared to the number of white collar employees in equivalent pay grades in the private sector. Based on this general assertion, the Office of Personnel Management and the Office of Management and Budget are using budget reductions in the amount of $1.6 billion over four years and an estimated $800 million savings each year thereafter as the prime motivator for all agencies to reduce by 2 percent per year for four years the number of positions graded 11 through 15.

The American Legion's primary concern is the fate of the Department of Medicine and Surgery and its ability to provide quality medical care absent its total exemption from the GS 11 through 15 grade reduction initiative. We have been assessing the impact of the initiative since early 1984. American Legion Field Representatives are hearing horror stories from management officials during their site visits to VA medical centers about the difficulties that are being incurred as a result of the reductions.

Not only is the reduction initiative eliminating positions necessary for the provision of health care, but it is also causing adjunct problems. Employees hired in grades below grade 11 are not being promoted. Aside from negatively affecting the morale of individuals currently employed in these positions, it is hampering the ability of VA to recruit and retain new employees to fill vacancies in positions graded just below the targeted level because of the limited to non-existent possibility of promotion for an indefinite period of time. We understand that this is particularly true with respect to recruiting Pharmacists, Social Workers and Psychologists at several medical centers.

The Veterans Administration, as an agency, should not have been included in the reduction initiative from the outset. If the Office of Personnel Management and the Office of Management and

Budget had first reviewed the position structure of VA prior to taking a shotgun approach to the alleged Government-wide management escalation that was painted in broad strokes by the Grace Commission, this fact could have been obvious.

After much coaxing, the Administrator did request the exclusion of title 38 positions in the Department of Medicine and Surgery, the majority of which are physicians and nurses, from the reduction initiative. The request was granted by OMB, but the funds were not restored in the FY 1985 budget to support these positions. OMB irrationally decided that the over $5.35 million was to be absorbed by VA.

The result of this decision now has left the grade 11 through 15 positions under title 5 vulnerable to the 2 percent per year reduction. The Department of Medicine and Surgery at 14.6 percent, had the lowest rate of title 5 positions at this grade level compared to total employment, of any department or staff office in the Veterans Administration prior to implementation of the reduction initiative. Title 5 positions in DM&S comprise 60 percent of the department's employment in the affected grades.

Sixty-eight percent of all DM&S personnel employed in the grade 11 through 15 levels are involved in the direct provision of health care to veterans. The remainder serve in critical management positions that are necessary for the administration and supervision of the provision of health care to veterans.

To satisfy the goals that have been imposed upon the Department of Medicine and Surgery, it has been necessary for Hospital Directors to deny promotion of eligible personnel to grade 11 positions. Some important positions have been abolished. Vacancies, some of which existed prior to implementation of the initiative, have not been filled. System-wide shortages of Pharmacists, Social Workers, Psychologists, and other key personnel are materializing.

PL 98-371 (July 18, 1984), provided VA with additional FTE and funds to expand the Readjustment Counseling Program by 52 new Vet Centers. The Committee Report accompanying the measure specified that 55 of the 220 new hires for the program could be career-type appointments. As of April 12, thirty of the new positions in grades 11 through 15 had been filled. Out of the 30, only 7 were full-time career employees.

Recruitment and in many cases retention of employees in some critical positions has become almost nonexistent because of the lack of potential for promotion. And growing numbers of DM&S officials and employees are viewing the impending reduction of a minimum of over 1,400 health care personnel as the beginning of the end of the provision of quality medical care to veterans as we know it. Amidst all of this havoc, the Administrator has dug in his heels, and refused to seek an exemption of title 5 positions.

As we predicted over a year ago, the Department of Medicine and Surgery is now reeling under the impact of the illogically conceived grade reduction initiative. The medical care system cannot absorb the reductions that have been insensitively forced upon it by OMB. The practice of medicine cannot be equated with the shuffling of paper. Thus DM&S does not have the ability of other agencies to accept these reductions without a direct contradictory effect upon its ability to provide medical care.

The situation now existing within the Department of Medicine and Surgery is critical. Without substantial relief it can do nothing but get worse. It is obvious that no further consideration will be given this abominable and catastrophic situation by the Office of Management and Budget, and apparently the Administrator of Veterans Affairs.

Therefore, Congressional intervention appears to be the only possible salvation of the VA health care program, and its mission of providing quality medical care to veterans; conducting medical and scientific research for the good of all mankind; affording medical training and education to health care professionals; and serving as primary medical backup to the Department of Defense in case of national emergency.

The American Legion emphatically urges that this Subcommittee and the entire Congress promptly lend swift and serious consideration to such intervention before total and irreparable damage is wrought upon the VA medical care system.

The next concern regarding the provision of medical care by the Veterans Administration is the Administration's proposal to implement a means test for nonservice-connected disabled veterans, regardless of age. The initiative that has been set forth calls for, among other things, the repeal of section 610(a)(6) of title 38, United States Code. This would eliminate the authority to provide nonservice-connected veterans age 65 and older with eligibility for VA hospital and nursing home care without regard to their inability to defray the expense of such care.

Eligibility for medical care for nonservice-connected veterans would be based upon a formula that considers income and assets as the major determining factors. For nonservice-connected veterans whose gross annual family incomes including assets are in excess of double the maximum annual VA pension rate, procedures would be established by regulation identifying the conditions under which they may be considered unable to defray further expenses and VA care could be provided for a particular medical service. Except for veterans requiring emergency care and care in certain extraordinary circumstances, these veterans would not be eligible for VA health care until the out-of-pocket medical expenses exceed certain levels. These medical expense levels are termed the "expected medical expense contribution." The expected medical expense contribution would form the basis of a means test procedure to evaluate the veteran's inability to defray further medical costs.

If a veteran presented reasonable evidence that out-of-pocket payments for his/her care to private providers and third parties during the preceding twelve months equaled or surpassed the expected medical expense contribution, the veteran would be admitted. The precise evidence acceptable to VA and pertinent to such claims would be defined in regulations.

Veterans requiring emergency care and care in certain extraordinary circumstances could be admitted for VA care, but would be billed for the cost of such care up to their expected medical expense contribution. These terms would be further defined in regulation. In addition, the veteran would be billed up to his expected medical expense contribution for any examination provided to determine if emergency care is required.

The American Legion is opposed to the implementation of a means test for nonservice-connected veterans regardless of their age. We believe a means test would prove to be ineffective because available information indicates that most of the nonservice-connected veterans that use the VA medical care system are old, sick, and poor. If forced out of the VA system these veterans would have to resort to Medicare, Medicaid, or to other publicly supported institutions.

One of the primary reasons for the implementation of subsection 610(a)(6) of the title was the fact that nearly every veteran age 65 and up is eligible for Medicare. The legislative history of PL 91-500 shows that at the time the legislation was being considered, the cost of the provision of treatment under Medicare was higher than the cost of care by VA. It was estimated that savings to the Federal Government would exceed $8 million during FY 1971 because veterans were treated by VA and not under Medicare.

Current available figures reflect that the average daily cost of treatment in a VA facility is still less than the average daily cost of care provided through Medicare. Thus we are mystified as to how the repeal of section 610(a)(6) is supposed to save the Federal Government money, when in fact, the provision of medical care costs more under Medicare, which is expected to cost over $70 billion this year.

The implication that the VA system is crowded with affluent veterans is a myth. The American Legion earnestly suggests that before any consideration is given to this proposal, the Congress should require from VA an updated profile of the current patient population of the VA system. If, as we believe, such a profile demonstrates that the veterans using the system are overwhelmingly old and poor, then the question has to be answered, why establish another administrative mechanism that will accomplish nothing.

Another legislative initiative that is being set forth by the Administration would effect reimbursement from third party insurance carriers, for costs of medical care and treatment of veterans with nonservice-connected disabilities.

The American Legion is mandated to oppose third party reimbursement. The primary point of our opposition is that in essence, veterans would be paying for their VA medical care through health insurance premiums. If third party reimbursement were implemented the VA health care program would be changed in its essential nature from a benefit to a cost-sharing medical plan.

The projected savings expected to be gained from third party reimbursement is $65 million, and quite frankly, we fail to see how that could be an accurate figure. We have heard statements made in the past by VA officials during Congressional hearings to the effect that the administrative costs necessary to implement the mechanism for collection of insurance payments would probably exceed the costs that are recovered. Such reasoning seems logical when considering the majority of nonservice-connected veterans using the VA system are probably not covered by insurance, and that complicated problems involving cost formulas, quality controls and distribution of services would have to be resolved before third party reimbursement legislation could be implemented.

It is understood that there is some sentiment in Congress and the Administration that the present system provides a "free ride" for insurance companies when veterans with insurance use the VA medical care system; and that third party reimbursement would have minimal effects on insurance premiums for all subscribers. We have knowledge that the Insurance Industry is prepared to challenge the veracity of these statements, and that if third party reimbursement legislation were enacted, they will undoubtedly challenge the constitutionality of such a law, thus rendering it ineffective for a lengthy period of time.

Additionally, but equally important, we fail to understand how the Department of Medicine and Surgery could possibly find the personnel needed to administer a complicated third party reimbursement program, while at the same time the Department is being forced to eliminate positions and FTEE to the point that the situation is now beginning to effect the ability of VA to provide quality health care to veterans.

The proposed medical work loads for FY 1986 reflect no change in the number of inpatients treated in VA hospitals, which is projected at 1.4 million for the year. There is an allowance for an increase of 112,000 outpatient visits to almost 18.8 million, which we consider badly needed. It is estimated that over 21,000 veterans a month are turned away from outpatient clinics.

The maintenance of average operating beds in the VA system reflects a loss of 1,000 acute care beds and 100 domiciliary beds, and an increase of 700 nursing home beds for a net loss of 400 beds. The loss of 1,000 acute care beds is deeply disturbing to The American Legion, particularly when considering the fact that VA faces the prospect of 7 million World War II veterans passing age 65 by 1990.

We have offered precautionary comments over the past several years, that in our judgment there should be no further reduction of acute care beds within the system. However, since FY 1981 3,500 acute care beds have been eliminated - and that does not include the decrease of 1,000 beds proposed for FY 1986. This is a particularly bad time to be eliminating acute care beds, when aging veterans are experiencing more catastrophic illnesses. Older persons ordinarily require care for an acute episode before passing to the need for long-term care. Thus, while the need for more long-term care beds in the system is clearly demonstrable, that need by itself does not connote a decreasing need for acute care beds. The Veterans Administration must maintain a substantial number of acute care beds if it is to retain its ability to treat the full mix of treatment needs required of it by its primary mission, and its ability to fulfill the agency's latest assigned mission as the principal contingency back-up to the Armed Services medical programs in case of an outbreak of hostilities.

We do approve of the proposed increase of 700 nursing care beds, to 11,500. Nursing Home Care Units in the VA system are always used to capacity, and most of them have waiting lists. A consistent increase in nursing care beds is strongly indicated.

Medical and Prosthetic Research

A decrease of $5 million, down to $187 million, in research funds is projected for FY 1986, and this is not acceptable to The American Legion.

The Medical and Prosthetic Research Program in the Department of Medicine and Surgery is a matter of special concern to us. This is because we are keenly aware of the importance of research in the triad of the VA health care program: clinical care, education of health manpower, and research. None of the three elements can thrive without the presence of the other two. It is a known fact that VA cannot continue to provide high quality medical care to veterans without a strongly funded research program. Much of the research in which VA engages is basic research that is advantageous not only to veterans, but which advances medical science and is of direct benefit to all mankind.

Equally important is the fact that a strong and viable research program ensures the recruitment and retention of high quality physicians into VA service. This fact was proven during recent years, when serious underfunding of VA research led to the loss of many good physicians who took employment elsewhere so they could pursue research. We trust the Congress will not let such a situation develop again.

The decrease of $5 million is alarming. Also projected is a loss of 157 research personnel which would bring the systemwide total down to 4,348. We do not know how these reductions will be accomplished, but we are extremely concerned, because we see a need not for a reduction, but rather for an increase of available personnel for the research activities. The Federal Government could not spend any of its funds any more wisely than on a vigorous and viable VA research program, that benefits the entire American people. The increase in research funds for FY 1985 was encouraging. However, the proposed reduction may be viewed as a serious threat to the program.

Geriatric Research Education and Clinical Centers (GRECCs)

We are concerned at the fact that there are no funds in the VA Budget for further expansion of the GRECC program.

Public Law 96-330, approved August 26, 1980, authorized the establishment of seven GRECCs in addition to the eight then functioning. In FY 1984, VA requested and received funding to establish two additional GRECCs. At that time it was explained to us that VA would request funding for two additional GRECCs each year until the seven authorized were operating, for a total of 15, as authorized by PL 96-330.

Additionally, a provision contained in PL 98-528 made permanent the authorization of appropriations to support the research and education activities of the GRECC program in Fiscal Years 1985 and beyond.

The fact that in FY 1986 there is again no proposed funding for expansion of the program is discouraging. We believe that any further delay in establishing the authorized GRECCs will be unfortunate. These centers of excellence are doing extremely valuable work in all three fields of clinical care, education of health professionals in aspects of geriatric medicine, and in basic research on such conditions as various forms of cancer and Alzheimer's Disease. It is obvious that with the nation's aging population, and increased longevity, there is a desperate need for more knowledge about Alzheimer's Disease. With encouragement and needed funding there is a possibility for VA research to lead the field in this particular disease, before it becomes a health problem of epidemic proportions.

We would appreciate the Subcommittee's consideration of adjusting the VA Budget to include funds for, and instructions to VA to proceed to establish another one or two GRECCs during FY 1986.

Grants for Construction of State Extended Care Facilities

The Budget Message proposes a reduction of $13 million, down to $22 million for grants for construction of State Extended Care Facilities.

The American Legion is very much aware that the services provided by State Homes have greatly reduced the burden that otherwise would have been borne by the Veterans Administration, and when considering the current efforts to reduce Federal spending, the role of the State Homes becomes even more significant.

The FY 1986 request will provide for four projects which will produce 450 additional nursing home beds, and 126 convertible (domiciliary/nursing home) beds. Additionally, these resources will support one life safety project and eight remodeling projects.

However, we are informed there is now a backlog of 66 projects representing requests for grants of $165 million - and the list is growing almost daily. What this means is that if a State submits a request for a grant for funding of a project today, it may receive funds five to six years in the future.

The proposed decrease of $13 million translates into funding for fewer requests in FY 1986. As we move into the period of an aging veteran population that will be with the nation for the foreseeable future, the States can be of major assistance to the Federal Government in caring for this population through State Homes and extended care facilities. However, in order to materially ease the pressure on the resources of VA, adequate funding must be provided to the States so that proposed projects may be completed.

The American Legion does not feel that the proposed $22 million is sufficient for the funding of grants for construction of State Homes, and this position is based upon the backlog of requests. Many States are moving very positively to make provision for their aging veteran populations, a fact that is most commendable. However, it deserves the full support and encouragement of the Federal Government. This program is a most cost-effective way for the Federal Government to meet its obligation to veterans.

Grants to the Republic of the Philippines

The Budget proposal provides a grant of $500 thousand to the

Veterans Memorial Hospital in Manila. This grant has been made by the United States consistently since the end of WW II. The Veterans Memorial Hospital cares for many Filipino veterans who served in the Allied cause during WW II. There is certainly an obligation by this country to continue to show our gratitude and concern for them. The American Legion has always supported this grant, and continues to do so.

MEDICAL CONSTRUCTION

In the Administration's Budget, the medical construction program is recommended for a reduction of $154.9 million down to $712.9 million, for FY 1986. And that figure includes $160 million when VA is playing catch-up with its capital plant renovation program.

With respect to the subject of medical care and construction, The American Legion is compelled to address two statements that are contained in the section of the Senate/Administration Deficit Reduction Plan dealing with the reform of VA health care.

The first states that "The number of veterans age 65 and older, now eligible for no cost care at VA hospitals regardless of income will almost double by the end of the century, creating severe expansionary pressures."

The American Legion is aware that there will be a large increase in veterans age 65 and older by the year 2000. However, regardless of that number, there is at this time no reliable figure available as to the level of demand for care from the VA that will develop. In our judgment the level of demand will be influenced by whatever alternative resources are available to these veterans and, in each instance, their proximity to a VA medical care facility. Experience shows that the most frequent users of the VA system comprise about 10 percent of the nonservice-connected veteran population - the 10 percent in the lowest economic stratum.

The second statement implys that "VA projects that maintenance of status quo policy will result in annual VA medical care and construction requirements as high as $37 billion by the year 2000 to build and operate 100 additional VA hospitals."

It is doubtful that VA or anyone with any knowledge of the VA medical care system, of who uses the system, and of the fiscal in prior budget authority that is being reprogrammed from the major working reserve.

We realize this is the second largest construction budget in VA's history, the largest being in the current fiscal year. However, we question the wisdom of reducing the funding for medical construction when the capital plant of the VA health care system is deteriorating. The reasons for this deterioration are manifold; one of them being serious underfunding of this program for several years until recently. This means VA is playing catch-up with its capital plant renovation and replacement program. The facilities have aged more while nothing was being done, and costs have escalated. It has been a losing proposition all around. Finally, the Government has been trying to make up for lost time, and it is costing a lot of money, but it is still a good investment. As we have said many times, the capital plant of the VA system is a multi-billion dollar investment by the Federal Government, and it must not be allowed to deteriorate.

We have preliminarily reviewed the replacement and renovation projects scheduled for FY 1986, and based on the reports of our Field Representatives who make site visits to all of these facilities, we can assure the Committee all of the work scheduled is needed, and much of it is long overdue.

We are pleased to see funding provided for work on a clinical addition, renovation, parking and a 240-bed Nursing Home Care Unit in Philadelphia; and for replacement and modernization at the VAMC Houston. These two projects have been strongly supported by The American Legion.

We do have two particular areas of concern we wish to mention. First is the issue of the replacement hospital at Baltimore. The need for a replacement hospital in Baltimore has long been established, and, in fact, construction had begun when the President included the funding for this construction in a recission message in 1981.

In August 1984 VA requested a $2 million increase in the Advance Planning Fund in the FY 1985 Budget request for use in determining the most appropriate approach to modernizing the medical centers at Loch Raven and Fort Howard. As a result of that request, Congress provided the $2 million and directed VA to add the alternative of a new replacement medical center to the modernization of the two facilities. A planning report on this is scheduled for completion on April 1, and it will reportedly recommend the best course of action. Regardless of the recommendations contained in the report, we have been told that implementation of any proposals would not be possible until FY 1988 or 1989.

The American Legion strongly recommends a replacement hospital in Baltimore. We have seen evidence where veterans who could have benefitted from inpatient treatment at VAMC Baltimore, have been placed in ambulatory care programs in order to meet, as well as possible, their medical needs. We understand that the medical center has been forced to admit only those veterans suffering from the most severe acute illnesses, for which hospitalization is absolutely necessary. In addition, we have learned that due to constraints on resources and space, major elective surgery cases have been delayed. The American Legion feels that a replacement hospital needs to be built and should be built. We hope the Subcommittee will give this serious consideration.

Our second concern is the 60-bed nursing home that was proposed for construction at VAMC Providence, Rhode Island. At your request, Mr. Chairman, the General Accounting Office issued a report dated May 15, 1984, subject of which is titled: "VA Justification for Two Nursing Home Care Construction Projects in its Fiscal Year 1985 Budget Request." The report states that the project at the Providence VAMC does not appear to be needed. The report goes on to say that VA did not adequately consider local needs and resources which indicate that the Providence area will have an ample supply of community and State Home beds to meet veterans nursing home needs in 1990. According to the report, on May 11, 1984, the Acting Chief Medical Director advised GAO that he had recommended to the Administrator that the project be deleted from the VA's Fiscal Year 1985 Budget request.

The American Legion disagrees categorically with the information released by the General Accounting Office that the VA assessment of the need for nursing care at Providence was not sustainable. We have been in frequent communication with the Rhode Island American Legion, and our information from that organization is contrary to the GAO Report.

A site visit report by an American Legion Field Representative covering the period September 5-11, 1984, states in its conclusions that the needs of the aging veteran have been brushed aside by the Providence VA Medical Center. The report goes on to say that "the nursing home needs of the veterans within the Primary Service Area (PSA) of the medical center cannot be met today. If a 60-bed NHCU was opened today on facility grounds, it would be at full occupancy within a month. During the course of this survey, 55 veterans were placed in 28 contract nursing homes from this facility. This did not include 30 placements from the New Bedford area. Also, the waiting list was estimated at between 20-25. Exact figures regarding the waiting list were not revealed to this surveyor." The report continues by stating that no further placement could be done at that time because there was no funding available since it was the end of the fiscal year. The waiting period for veterans was reported by VA staff as only two to three weeks, but the Commandant of the Bristol State Home stated his waiting list included approximately 60 applicants and the waiting period was between six to eight months. The surveyor felt as a result that the figures offered by VA staff were suspect.

Statistics from DM&S show that in FY 1983, 22,340 veterans resided within the Providence PSA between ages 65-74, and 6,886 were age 75 and older. It is estimated in FY 1990, 39,749 veterans will be between the ages of 65-74, and 10,824 will be age 75 and older.

Figures obtained from the Rhode Island Department of Health and used by GAO in support of its report reflect that providers plan to develop 1,098 additional nursing beds within the next five years either through expansion or new construction. The Providence Medical Center Director advised our Field Representative that it is certain that by the Spring of 1985, 432 additional beds will become operational and quite likely that 120 more beds will be developed by late 1985. It must be pointed out that if in fact the proposed 552 beds were constructed in the private sector, they would be for use of all citizens of Rhode Island, not just veterans. However, we seriously question the proposed number of beds, and particularly those proposed for 1985. As of September 11, 1984, the date on which our Field Representative left Providence, not one construction project had started within the State.

Recommendation No. 1 contained in the Field Service Report recommends that funding for construction of a 60-bed NHCU be approved, and that the project be given top priority.

Mr. Chairman, on the basis of the Field Service Report and the information provided to us by the Rhode Island American Legion, we wish to reiterate at this time the support of the National Organization of The American Legion for the construction of a Nursing Home Care Unit at VAMC Providence. We are satisfied the unit is needed to provide care for veterans in the Primary Service Area of that VAMC. We believe the data assembled by the General Accounting Office is not accurate or correct, and does not demonstrate an understanding of the needs and problems of the aging veteran population of the Providence area. Our recommendation to the Subcommittee is that funding for the unit be included in the FY 1986 Budget.

We would like to reiterate our concern regarding the wisdom of the proposed reduction in medical construction funding at a time restraints that are placed upon it, ever made such a statement. The American Legion has not and would not ask for 100 additional VA medical centers. Nor can we conceive the VA medical care budget being increased to $37 billion in 15 years. It is unfortunate that ominous figures such as these are being used as ammunition to force change upon the VA health care program.

DEPARTMENT OF MEMORIAL AFFAIRS

The funding request for the Department of Memorial Affairs reflects a slight increase of $97 thousand to $44,269 million for FY 1986. An additional $18.9 million is identified for cemetery construction projects which is up $1.8 million from FY 1985. The American Legion feels that this funding appears adequate. We totally support the construction program that is underway, and which includes the Ft. Mitchell National Cemetery, scheduled to open in the Fall of 1986; the development of 13,000 gravesites and construction of an administration building at Withlacoochee, Florida. The American Legion is also supporting the establishment of a national cemetery in Merced County, California. We continue to work with the Department of Memorial Affairs in attempting to acquire land for the expansion of existing national cemeteries.

The total Memorial Affairs program, we believe, is progressing in a satisfactory manner. It is the perception of the Legion that the program has improved immeasurably since it was placed under VA jurisdiction. We commend the progress that is being made, and trust that the Congress will continue to support VA's plans with the modest funding needed for this program.

Mr. Chairman, that concludes our statement, and we once again thank the Subcommittee for the opportunity to present our views.

VETERANS ADMINISTRATION/DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

STATEMENT OF RONNIE J. WYNN, PRESIDENT, COLONIAL MORTGAGE CO., AND VICE PRESIDENT, LEGISLATIVE COMMITTEE, MORTGAGE BANKERS ASSOCIATION OF AMERICA

ACCOMPANIED BY:

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BILL CUMBERLAND, MBA GENERAL COUNSEL

Senator GARN. Next is Mr. Ronnie J. Wynn, president of Colonial Mortgage Co.

Please proceed. Don't be afraid to ask for whatever you want. Don't be intimidated by my former caveats.

Mr. WYNN. Thank you, Mr. Chairman.

Mr. Chairman and members of the committee, my name is Ronnie Wynn, and I am president of Colonial Mortgage Co. of Montgomery, Ala. I am also vice president of the legislative committee of the Mortgage Bankers Association of America. Accompanying me today on my right is Burt Wood, MBA legislative counsel, and to my left, Bill Cumberland, MBA general counsel.

We appreciate the opportunity to appear before you today to testify on the appropriation for fiscal year 1986 for HUD and for VA. Our comments will focus on the necessity of establishing sufficiently high credit budget limits for the nonsubsidized, user fee supported FHA Mortgage Insurance Program and the GNMA mortgage-backed security guarantee programs.

MBA has consistently maintained that it is not necessary to place maximum credit limits on the FHA mortgage insurance and the GNMA-MBS programs. Both programs are supported in full by user fees. In fact, both programs generate net revenues for the Government.

However, in the event Congress decides to continue to place limits on the programs, MBA recommends that such ceilings should be set at least at the level recommended by the administration; that is, $50.9 billion for FHA and $68.25 billion for GNMA.

While we certainly would support an increase in either program's ceiling, the current proposals appear adequate, especially in light of this subcommittee's demonstrated willingness and ability to act quickly to raise the limits if this should become necessary.

With regard to the fiscal year 1986 appropriation for the VA, MBA urges the subcommittee to keep a watchful eye to ensure that the VA Home Loan Guarantee Program is adequately funded.

The Congressional Budget Office estimates that the VA will not need congressional appropriations to the VA Home Loan Guarantee Fund in fiscal year 1986 to continue to operate the program as an entitlement program for veterans of America's armed forces. The President's fiscal year 1986 budget proposal estimates that the VA will need $405 million in congressional appropriations to the fund to ensure solvent program operations. However, the President's budget proposal also calls for the imposition of a special tax, called a user fee, of 5 percent on veteran obtaining mortgage guarantees.

Because the President's VA shortfall figures are associated with the administration's proposed tax on veterans, MBA believes that the CBO evaluation is more accurate and that no appropriations will be needed.

MBA would like to take this opportunity to alert this subcommittee to reject a proposal in the President's fiscal year 1986 budget to impose new or additional fees on home buyers.

MBA is deeply concerned by the provisions of the administration's budget proposal that call for the imposition of new and/or increased user fees on an array of Federal mortgage credit programs operated by FHA, VA, GNMA, FNMA, and FHLMC.

MBA believes that these proposed fees are a tax on homeowners using the Federal mortgage credit programs and that they are contrary to the whole purpose of these programs. The proposed fees are an effort to undercut the decision of Congress that the Federal Government should encourage homeownership by encouraging private capital to be available to prospective home buyers. If additional taxes are needed, they should be broad based and not targeted to homeowners. MVA urges that all spending be reviewed, including defense and cost of living allowances, before a tax increase is considered.

But we recognize that some broad-based tax increase may be necessary. The proposed special tax—user fees—however, should be rejected.

The proposal for a special tax on home buyers has been cut back, shifted and deferred over the past weeks as the administration has begun to realize that its proposal for additional fees on Federal mortgage credit programs is not realistic. Even as scaled back as the proposal now stands, its basic concepts are not altered. The proposal should be rejected.

We appreciate the opportunity to testify before the subcommittee today, and we would be happy to entertain your questions.

Senator GARN. I don't have any particular questions for you, and I'm not going to start like I did on the VA and the others. I don't need to repeat myself again. I appreciate the opportunity of having you come.

Burt and I have had the opportunity of working together for a number of years on a lot of issues and had a very good relationship, so thank you very much for your testimony.

Mr. WYNN. Thank you, Mr. Chairman.

[The statement follows:]

STATEMENT OF RONNIE J. WYNN, PRESIDENT, COLONIAL MORTGAGE CO., ON BEHALF OF THE MORTGAGE BANKERS ASSOCIATION OF AMERICA

Mr. Chairman and Members of the Subcommittee, my name is Ronnie J. Wynn. I am President of the Colonial Mortgage Company, Montgomery, Alabama. I am also Vice Chairman of the Legislative Committee of the Mortgage Bankers Association of America.* MBA is the trade association of the Nation's mortgage banking and real estate finance industries. Accompanying me today are Burton C. Wood, MBA's Legislative Counsel, and William E. Cumberland, MBA's General Counsel.

We appreciate the opportunity to appear before you today to testify on the appropriations for FY 1986 for the Department of Housing and Urban Development (HUD) and for the Veterans Administration (VA). Our comments will focus on the necessity of establishing sufficiently high credit budget limits for the non-subsidized, user-fee supported Federal Housing Administration (FHA) mortgage insurance and Government National Mortgage Association (GNMA) Mortgage-Backed Security (MBS) guaranty programs. Because the demand for home mortgage credit is interest rate sensitive, the performance of the economy in FY 1986 and Congress' ability to reduce the Federal deficit are relevant to the discussion of credit ceilings for FHA insurance and GNMA guaranties.

MBA has consistently maintained that it is not necessary to place maximum credit limitations on the FHA mortgage insurance and the GNMA-MBS programs. Both programs are supported, in full, by user fees. In fact, both programs generate net revenues for the government. However, in the event Congress decides to continue to place limits on the programs, MBA recommends that such ceilings should be set at the level recommended by the Administration, that is, $50.9 billion for FHA, and $68.25 billion for GNMA. While we certainly would support an increase in either program's ceiling, the current proposals appear adequate, especially in light of this Subcommittee's demonstrated willingness and ability to act quickly to raise the limits if it becomes necessary.

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*The Mortgage Bankers Association of America is a nationwide organization devoted exclusively to the field of mortgage and real estate finance. MBA's membership comprises mortgage originators, mortgage investors, and a variety of industry-related firms. Mortgage banking firms, which make up the largest portion of the total membership, engage directly in originating, financing, selling, and servicing real estate investment portfolios. Members include:

- Mortgage Banking Companies
- Mortgage Insurance Companies
- Life Insurance Companies
- Commercial Banks
- Mutual Savings Banks
- Savings and Loan Association
- Mortgage Brokers
- Title Companies
- State Housing Agencies
- Investment Bankers
- Real Estate Investment Trusts

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With regard to user fees for the Federal mortgage credit programs, MBA would like to take this opportunity to alert this Subcommittee to reject a proposal in the President's FY 1986 Budget to impose new or additional fee on homebuyers. While this issue would ordinarily be considered initially by the Budget Committee and the authorizing committees, the subject of fees may be brought before this Subcommittee if a continuing resolution should be needed to extend the FHA mortgage insuring authority.

MBA is deeply concerned by the provisions of the Administration's budget proposal that call for the imposition of new and/or increased "user fees" on an array of Federal mortgage credit programs operated by the Federal Housing Administration (FHA), the Veterans Administration (VA), the Government National Mortgage Association (GNMA), the Federal National Mortgage Association (FNMA), and the Federal Home Loan Mortgage Corporation (FHLMC).

MBA believes that these proposed fees are a tax on homeowners using the Federal mortgage credit programs, and that they are contrary to the whole purpose of the programs. The proposed fees are an indirect effort to undercut the decision of Congress that the Federal government should encourage homeownership by encouraging private capital to be available to prospective home buyers. If additional taxes are needed, they should be broad-based and not targeted to homeowners. MBA urges that all spending be reviewed, including defense and COLAs, before a tax increase is considered, but we recognize that some broad-based tax increase may be necessary. The proposed special tax, however, should be rejected.

The proposal for a special tax on homebuyers has been cut back, shifted, and deferred over the past weeks as the Administration has begun to realize that its proposal for additional fees on Federal mortgage credit programs are not wise. As initially proposed by the President, the mortgage insurance premium paid at settlement by FHA borrowers would be increased from 3.8 percent to 5 percent and for VA loans the premium would be increased from 1 percent to 5 percent. The existing mortgage-backed security guaranty fee imposed by GNMA would be increased under the proposal from the current 6 basis points to 15 basis points. (A basis point is 1/100th of one percent.) The proposal would impose new fees on FNMA and FHLMC, which would have to pay a 5 basis point fee on debt issuances, including new debt as well as rollovers of existing debt. Issuances of participation certificates and mortgage-backed securities would also be subject to a 5 basis point fee that would increase to 8.3 basis points in 1987. These fees would apply annually to the outstanding balance of debt and securities until they are paid off at maturity.

The exact details of the proposal, as it now stands, are not clear. The FHA and GNMA fees, which can be raised administratively, have been dropped from the packages. The VA fee has been scaled back to 3.8 percent and this tax and the tax on FNMA and FHLMC would be phased in over several years. But as scaled back as the proposal now stands, its basic concepts are not altered. The proposal should be rejected.

MBA supports the current existing user fees imposed on the FHA mortgage insurance and GNMA mortgage-backed security programs as necessary to operate these programs, but only to the extent that the fees are designed to make these programs actuarially sound and self-sustaining--that is, when the user fees are devoted to covering the cost of administering these programs, including salaries, rent, overhead, etc., as well as to pay realized losses as a result of defaults experienced by these programs and entities. In order to accomplish these purposes, these user fees should continue to be directed to designated funds operated by and for these entities rather than being included as general U.S. Treasury revenues.

The VA Home Loan Guaranty program was established by Congress as an entitlement program for veterans designed to provide veterans with assured access to affordable mortgage credit. MBA supports the maintenance of the VA Home Loan Guaranty program as an entitlement program for veterans that guarantees no-downpayment loans. MBA recognizes that the existing funding fee may be justified temporarily to stablize the program in light of the recent dramatic escalation in default losses.

MBA opposes the fees proposed to be levied on debt and mortgage-backed securities issued by FNMA and FHLMC. Both these entities currently charge user fees to lenders for mortgage purchases and guaranties of mortgage-backed securities that are set at levels designed to cover FNMA's and FHLMC's costs and underwriting risks. FNMA and FHLMC do not require any Congressionally appropriated funds to operate.

Charging fees to users of the government's housing and mortgage credit programs for the purpose of enhancing U.S. Treasury revenues will increase mortgage rates and is contrary to the Congressional purpose of fostering homeownership through these programs and entitites. MBA believes that in the fight to reduce the Federal deficit, it may be necessary to raise taxes as a last resort, once significant cuts have been made in Federal spending. But such increases should be broad-based rather than imposing a special tax on homeownership. Homebuyers and borrowers should benefit from the purpose of these programs, which has been to foster homeownership opportunities by making mortgage credit more affordable for moderate-and middle-income homebuyers.

While the ostensible purpose of the Administration's proposal is deficit reduction, MBA views these fees as a continuation of the effort to reduce the role that the Federal government has long played in providing support for mortgage credit.

The OMB budget for FY 1986 flatly states that: "There is a recognized national need to promote the private financing of mortgage credit and to support an environment in which there are fair and equitable opportunities for business development and growth." (p. 5-57)

This statement disregards the fact that FHA and VA loans are made entirely with funds provided by private lenders and therefore represent a time-tested partnership between Government and private enterprise. Furthermore, GNMA, FNMA, and FHLMC, which serve to stimulate and stabilize the secondary mortgage market, do the same thing by maximizing the role of the private market.

Perhaps the most unfair characterization of the quotation above is that this is a "recognized national need." Congress has repeatedly rebuffed the efforts of the current Administration to reduce the role of FHA and GNMA, by supporting adequate levels for the credit budget for these programs and increasing those levels as needed. Even though

Congress has passed legislation to enhance the conventional mortgage-backed security market, the "Secondary Mortgage Market Enhancement Act," P.L. 98-440, it has emphasized that the role played by GNMA, FNMA, and FHLMC is essential in maintaining support for mortgage credit for moderate- and middle-income home borrowers.

In particular, OMB justifies fees for the operations of GNMA, FNMA, and FHLMC as necessary "to prevent the Government and Government-sponsored enterprises from competing unfairly with the private sector in the secondary mortgage market."

This completely ignores the fact that GNMA, FNMA, and FHLMC are restricted to the lower end of the mortgage market by Congressional review of their charter authority. GNMA may only purchase FHA, VA, and Farmers Home Administration loans with restricted maximum mortgage amounts, while FNMA and FHLMC may only purchase loans up to the maximum mortgage amount of $115,300.

Private entities already compete aggressively at these lower market levels, and they have no competition whatsoever in the loan market above the mortgage purchase limits.

Another rationale promoted by OMB is the need to impose "user fees" on Government programs that reflect the costs attributable to the programs. MBA believes this is a legitimate objective, and supports existing user fees for FHA and GNMA as necessary to operate these programs, but only to the extent that they are designed to make these programs actuarially sound and self-sustaining.

FHA has operated its homeownership programs for 50 years at no cost to the Government. These programs include Section 203(b) (single-family), as well as newer programs, Section 234 (condominium), Section 244 (coinsurance), and Section 245 (graduated payment mortgage). Program administration costs, as well as foreclosure claims, are completely covered by mortgage insurance premiums; i.e., "user fees" already are sufficient to pay program costs, and program operations were backed by $3.66 billion in reserve funds as of the end of 1984.

GNMA has also operated its Mortgage-Backed Security program on a self-sustaining basis since its inception in 1968. GNMA had $819 million in its reserve fund, known as the MBS

Investment Portfolio, as of the end of FY 1984 to cover losses, and there have only been $15.6 million in claims since the GNMA-MBS program began operations in 1970. As of the end of FY 1984, GNMA had issued $215.6 billion in MBS. Thus, the ratio of net claims and advances to securities issued through FY 1984 is an exceedingly small .007 percent.

FNMA and FHLMC operate under Congressional Charters that require these entities to provide support to the secondary mortgage market. Their mortgage purchase activities are restricted by Congress, which limits their mortgage purchases to loans of $115,300. In 1984, FNMA's average loan purchase was approximately $54,000, while FHLMC's was $48,763.00. Thus, these entities are clearly serving that sector of the market as Congress intended.

Neither FNMA nor FHLMC has ever required Congressional appropriations. Both are quasi-public entities and their stock is publicly traded. However, their Boards of Directors are partially (FNMA) or wholly (FHLMC) appointed by the President.

Housing, over the past four fiscal years, has shouldered a significant portion of the cuts in domestic spending. MBA has, during this time, maintained its position on subsidized housing--that is, that limited Federal subsidies should be targeted to the needy.

MBA, however, does not view the Federal mortgage credit programs as involving subsidies, to the extent that these programs have always covered their costs. Therefore, MBA believes it is illegitimate to characterize these proposed increases as "user fees," because they seek to generate a profit—not to cover costs--and that profit is a thin disguise for a special tax on homeownership. Short-term profit taking will jeopardize these programs by increasing their risk and by making homeownership unobtainable for marginal borrowers who previously would have been quite capable of managing their mortgage debts.

MBA believes that the concept of these "user fees" and their potential harmful impact on the programs has not been adequately analyzed. These programs, with the limited exception of the VA loan guaranty program, have not been responsible for adding to the Federal deficit. MBA, therefore, urges Congress to reject the proposed "user fee" increases for FHA, VA, GNMA, FNMA, and FHLMC.

GOVERNMENT NATIONAL MORTGAGE ASSOCIATION

The GNMA-MBS program facilitates secondary mortgage market financing for mortgages insured by FHA or guaranteed by the VA. Virtually all FHA and VA loans are pooled into GNMA-MBSs. The GNMA-MBS activity provides a guaranty of the timely payment of principal and interest, as scheduled to investors. The Federal government's potential liability is limited under the GNMA-MBS program because the government also backs the underlying product through the primary loan insurance and guaranty programs—FHA and VA.

Under the MBS programs, lenders package FHA/VA mortgages into "pools" and sell them in the capital markets to investors. GNMA prescribes a standard format for the securities and guarantees the performance of the originator/issuer, who must pay investors in full each month, whether or not all funds have been received from homeowners. In the 14 years of its existence, GNMA's fee income has always offset its expenses. It has not cost the government a single penny.

Because the GNMA-MBS is a secondary guaranty program, a restriction in the GNMA-MBS program limits program activity in the underlying primary loan programs to the FHA insurance and VA guaranty programs. Essentially, GNMA provides a means for homebuyers, primarily moderate- to middle-income families and veterans, to obtain competitive direct access to the capital markets via the secondary mortgage market.

In FY 1983, commitments issued in the GNMA-MBS program totaled $64.22 billion. This was perilously close to the FY 1983 $68.25 billion ceiling. We expect to see continued use of the GNMA-MBS program in future years, due to its widespread acceptance in the marketplace and its critical value as a role model in fostering capital market innovations. Further, the level of purchases of VA and FHA loans by the Federal National Mortgage Association (FNMA), relative to its conventional mortgage purchases, has declined in recent years because the yields required by FNMA have been more than yields prevailing in the GNMA market. As a result, the GNMA-MBS market has become even more important as a conduit for tapping private funds for investments in FHA and VA loans.

As we understand it, FNMA sets its required yield by calculating the expected prepayment rates for FHA and VA loans (which are slower than those for conventional loans due to the assumability of FHA and VA loans), and compares these yields with its cost of borrowing. The resulting required yields have caused FNMA's purchases of FHA/VA loans to fall dramatically, as indicated by the table below.

FNMA Purchases of FHA/VA Loans

Calendar Year	Home Loan Mortgage Volume (in millions of dollars)
1984	190.0
1983	186.1
1982	901.2
1981	2,284.0
1980	5,273.3

Source: Federal National Mortgage Association, April 1985.

Formerly, FNMA provided a strong market alternative for FHA and VA loans. However, since that market has virtually dried up, the GNMA-MBS program should be given high enough ceilings to provide a sufficient supply of mortgage credit. While this does not necessarily indicate that FNMA will never again offer competitive yields for FHA and VA loans, it does underscore the importance of providing an adequate credit budget level for GNMA during FY 1986.

MBA believes that the commitment authority of $68.25 billion for FY 1986, as requested by the President, will be adequate to permit GNMA to respond to anticipated demand for FY 1986. According to GNMA, GNMA commitment volume decreased dramatically from $64.2 billion in FY 1983 to $39.7 billion in FY 1984. This drop was due to a variety of events that are not expected to recur in the foreseeable future. The FY 1983 commitment volume was unusually high due to a severe drop in mortgage interest rates. The FY 1984 commitment volume was restrained by a change in GNMA's fee structure. In the first half of FY 1984, GNMA-MBS commitment activity was $22.1 billion. During the first half of FY 1985, GNMA-MBS commitment activity was $21.1 billion, a drop of 4.5 percent from the comparable FY 1984 period.

Based on these facts and analysis, a commitment level of $68.25 billion would appear adequate to cover the anticipated demand for the GNMA-MBS guaranty program.

FEDERAL HOUSING ADMINISTRATION

For FY 1986, the President's Budget proposes that commitment authority for the FHA mortgage insurance program be set at $50.9 billion. This is the same commitment ceiling set for FY 1984, and the same ceiling ultimately approved for FY 1983. In FY 1983, a commitment ceiling of $39.8 billion was set initially but demand for the program during the year indicated that this ceiling was too low, and the authority was increased to $50.9 billion in the FY 1983 Supplemental Appropriations Act (PL 98-63).

MBA supports the President's request for FHA insuring authority of $50.9 billion. According to the FHA, during FY 1984, $22.5 billion in mortgage insurance was committed, and $17.2 billion of insurance was actually issued. During the first half of FY 1984, commitments totaled $12.0 billion, or approximately one half of the annual total of $22.5 billion. During the first half of FY 1985, FHA commitments totaled $18.4 billion, which is a 53 percent increase in volume from the first half of FY 1984.

During the first half of FY 1985, while FHA commitment activity was increasing 53 percent, adjustable rate mortgages as a percent of conventional mortgages closed was dropping from 64 percent to 50 percent, according to Federal Home Loan Bank Board data. If interest rates remain constant, as they have thus far during FY 1985, a further decline of the popularity of conventional adjustable rate mortgages may tend to encourage the use of the traditional FHA fixed-rate mortgage insurance programs, as has apparently occurred in the first half of FY 1985.

MBA's economics department estimates that mortgage origination activity will be in the neighborhood of $180 billion to $200 billion annually for the foreseeable future, with the FHA portion ranging between 10 percent to 20 percent of the market, as it has historically.

Based on these facts and analysis, a commitment level of $50.9 billion would appear adequate to cover the anticipated demand for the FHA mortgage insurance programs.

PROCEDURAL SAFEGUARDS

Notice of Program Activity Levels. In part due to the events in 1983 that required emergency action to accommodate higher FHA levels, MBA suggests that flexibility and procedural safeguards are an essential ingredient of the credit budget enforcement mechanism. The Senate HUD-Independent Agencies Appropriations Subcommittee's report on the FY 1983 HUD-Independent Agencies Appropriations Act (PL 97-272), and its report on the FY 1984 contained precautionary language, in the event that the limits on the FHA and GNMA-MBS programs were approached. It stated that "the Department (HUD) is directed to notify the Committee if it appears the limitation will require a moratorium on commitments." (See S. Rpt. 97-549, p. 17.) The Senate HUD-Independent Agencies Appropriations Subcommittee's report on the FY 1984 HUD-Independent Agencies Appropriations Act contained the same precautionary language as to the GNMA-MBS program, but is silent as to the FHA program. With regard to HUD appropriations for FY 1985, the Conference Report states that "the conferees expect the Department (HUD) and the Office of Management and Budget to adhere to the 1985 and 1984 programs detailed in the following tables. The Department is expected to utilize the regular reprogramming procedures if any changes are required to the agreed upon program contained in the tables." (See Conference Report 98-867, p. 8). MBA supports the inclusion of stronger language in light of the Administration's past efforts to reduce these programs without Congressional consultation. Congress must be notified by HUD at the earliest possible time that the ceilings could be reached in order to take appropriate and timely action.

MBA suggests that the following legislative language would provide the appropriate notice without burdening the administrative agencies:

> The Secretary shall notify Congress whenever the cumulative fiscal year commitments issued under the Federal Housing Administration mortgage insurance program or the Government National Mortgage Association Mortgage-Backed Security program exceed a pro-rata share of the total year-to-date commitment authority during any quarter of the fiscal year. However, no limitation is imposed, by virtue of this section, on the cumulative quarterly commitments authorized to be

> issued by the Federal Housing Administration or the Government National Mortgage Association, except pursuant to the total commitment limitations imposed by the Appropriations Act. This notification shall be made within 30 days after the end of any quarter affected by this provision.

This language would impose a duty on the HUD Secretary and the GNMA President to report to the Congress in a timely fashion whenever it appears that the commitments issued under the FHA mortgage insurance or the GNMA-MBS guaranty programs are being drawn down at such a rate as to pose the possible danger of reaching the program commitment ceilings. Prompt notification will enable Congress to react to avoid the possibility of program moratoria whenever it appears that commitments are being utilized at such a rate as to pose the possibility of running out of commitment authority before the end of the fiscal year. This section avoids imposing a blanket reporting requirement. A report is required only when it appears that program usage in any quarter, on a cumulative basis, is proceeding at such a pace that commitment authority could be exhausted. Both HUD and GNMA currently have tracking systems that provide this information. However, the proposed language also makes it clear that this is not an allocation scheme to ration commitments on a quarterly basis.

Anti-Impoundment Protections. Furthermore, MBA urges that anti-impoundment language be included as part of the appropriations measure. The Continuing Resolution for FY 1983, as well as the Continuing Resolution for FY 1984 (PL 98-151), provided that:

> Notwithstanding any other provision of this joint resolution, the head of any department or agency of the Federal Government in carrying out any loan guarantee or insurance program shall enter into commitments to guarantee or insure loans pursuant to such program in the full amount provided by law subject only to (1) the availability of qualified applicants for such guarantee or insurance, and (2) limitations contained in appropriations acts.

Senator Carl Levin (D-Mich.) introduced two bills on March 7, 1985: S 649, which would amend the Housing Act of 1949, and S 650, which would amend the Department of Housing and Urban Development Act by directing the HUD Secretary to use his or her guaranty and insurance authority to the extent there was a demand for the guaranty or insurance. The language used in these bills essentially tracks the language contained in the above cited Continuing Resolutions for FY 1983 and FY 1984.

MBA urges that similar language be included in the FY 1986 HUD-Independent Agencies Appropriations bill and in any Continuing Resolution, if such a measure becomes necessary.

VETERANS ADMINISTRATION

With regard to the FY 1986 appropriation for the Veterans Administration (VA), MBA urges the Subcommittee to keep a watchful eye to ensure that the VA home loan guaranty program is adequately funded.

The Congressional Budget Office estimates that the VA will not need Congressional appropriations to the VA Home Loan Guaranty Fund in FY 1986 to continue to operate the home loan guaranty fund as an entitlement program for veterans of America's armed forces. The President's FY 1986 Budget Proposal estimates that the VA will need $405 million in Congressional appropriations to the VA Home Loan Guaranty Fund to ensure solvent program operations; however, the President's budget proposal also called for the imposition of a special tax, called a user fee, of 5 percent on veterans obtaining mortgage guarantees.

According to CBO, the VA could sell more real properties than the number projected in the President's budget. New approaches to the sale of such property, such as auctioning and increased discounts, along with a steady decline in interest rates, would generate far more sales and revenue than the VA is projecting. Therefore, the revenues would finance the fund's projected deficits through 1990, eliminating the need for appropriations during this period. Because the President's VA shortfall figures are associated with the

Administration's proposed tax on veterans, MBA believes that the CBO evaluation is more accurate, and that no appropriations are needed.

If appropriations should become needed, they should be made. When Congress created the VA home loan guaranty program in 1944 to assist veterans returning from World War II to buy a home, Congress did not design it or intend it to be user-fee supported. The program was a recognition by a grateful nation that the men and women who had forgone civilian life, many of them against their will, to defend the vital interests of the country should be aided in achieving a home. The program was partial payment for services performed.

To young men and women who entered military service in subsequent years, some of them against their will, to protect the vital interests of the nation in Korea, Vietnam, and elsewhere, the program became a commitment. That commitment has been reviewed from time to time, and Congress has always determined to renew it, the latest review being only last year.

From the beginning, there was a realization that the program would need appropriations, and appropriations have been made in several fiscal years during the operation of the program. In 1984, Congress was faced with the fact that the economic cycle and certain changes in other VA operations precluded the VA from funding the home loan guaranty program from internal VA sources, and that appropriations would be required to continue the program.

Last year, Congress considered whether to renew its commitment to qualified veterans, especially the Vietnam veterans who are now reaching the point in their lives when they are ready to buy a home. The requested authorization and appropriations were granted; the VA was directed to administer the program in certain ways to reduce costs; and a 1 percent temporary funding fee, set to expire September 30, 1987, was imposed.

The effects on the program of the 1984 directives by Congress, of course, need to be studied, and the program may need further adjustments. But as recently as a year ago, Congress renewed its commitment to qualified veterans to assist them in buying a home, with a relatively nominal funding fee of 1 percent through 1987.

The proposed 5 percent fee was presented by the President as a necessary way of covering costs, similar to the 1 percent fee adopted by Congress last year. While not embracing the one percent fee last year, MBA testified before the Veterans' Affairs Committee in 1984 that the 1 percent temporary fee "is acceptable if a disruption of the program is the alternative." The 5 percent fee will disrupt the program; it is not an alternative to disruption. In its budget submission, the Administration did not raise or discuss this disruption. Only after questioning by some of the members of the Veterans' Affairs Committee during hearings held on February 20, 1985, did the VA admit there would likely be disruptions of the program.

Since February, this proposed tax on veterans wishing to obtain a VA guaranty has been scaled back to 3.8 percent, and even that would be deferred. The proposal is still an inappropriate targeted tax, and it should be rejected.

Beginning in 1981, the Reagan Administration has consistently demonstrated that it believes that the Government should discontinue the commitment to supporting the homeownership aspirations of Americans. In 1981, the Administration proposed a rollback and elimination of the Federal Housing Administration and the Government National Mortgage Association. Congress disagreed. Last year, the Administration proposed a scheme under which the VA would make lenders dispose of all properties after default, even after the Administration had been warned that such a drastic and retroactive change could wreck the program. Congress would not allow it.

This year, the Administration has recalled the political theory tenet that "the power to tax is the power to destroy." By proposing a tax on the users of the VA home loan guaranty program, the Administration has taken a first step toward accomplishing indirectly what it cannot achieve directly: a diminution and even a phasing out of the VA home loan guaranty program.

RENTAL HOUSING REHABILITATION AND DEVELOPMENT PROGRAM

Section 301 of the 1983 Housing Act (PL 98-181) created a rental rehabilitation and development grant program. The rehabilitation grants under the program provide for a 50 percent matching of state and local government efforts to rehabilitate privately owned residential proeprty. These grants can be used only in neighborhoods where the median income does not exceed 80 percent of the area's median income

The rental development grants also require at least a 50 percent matching of funds by the state or locality. Projects funded under this program must allocate at least 20 percent of the units to families at or below 80 percent of the median income of the area.

MBA urges the Subcommittee to provide for adequate funding for this low-income housing production program.

CONCLUSION

The FHA mortgage insurance and GNMA-MBS guaranty programs rely solely on private mortgage credit. The private lender, not the Federal government, is responsible for marketing the GNMA securities to investors. The Government's role as an insurer or guarantor improves the marketability of the mortgages and mortgage pools, expedites access to the secondary market, and thereby assures the availability of highly competitive mortgage capital at affordable rates to moderate- and middle-income families and veterans.

The real issue involved in FHA and GNMA ceilings is whether the Federal government intends to maintain its commitment to housing and mortgage finance by continuing programs that enhance the availability of adequate supplies of mortgage credit, especially for moderate- and middle-income families, first-time homebuyers, and veteran homebuyers. The Federal government, long ago, recognized the social need for, and importance of, housing its citizens and homeownership, and responded in an appropriate manner by creating programs to fulfill this social goal. Not only have the non-subsidized FHA insurance and GNMA-MBS guaranty programs worked efficiently, but they have been profitable for the government while utilizing private rather than governmental sources of mortgage credit.

They have achieved a remarkable success in serving as models of innovation and in structuring a mortgage finance delivery system that provides readily available sources of mortgage credit and that helps to stabilize the flows of mortgage credit throughout all phases of interest rate cycles. Importantly, these programs involve private sector lenders and investors to a maximum degree.

Two of the real benefits enjoyed under these programs are the capital market efficiency of the GNMA security, and the standardization offered by the underlying FHA and VA loan instruments. The non-subsidized FHA mortgage insurance programs provide a source of private mortgage credit for low-downpayment loans to homebuyers. The GNMA-MBS program ensures lenders ready placement in the secondary market for FHA and VA loans. In effect, the existence of the GNMA-MBS program allows the individual consumer the same access to the credit markets as large corporate borrowers.

The future of the mortgage finance delivery system is uncertain. Fundamental changes in the powers of all financial institutions are still being implemented pursuant to the Garn-St Germain Depository Institutions Act of 1982 (PL 97-320). Further changes are under consideration by the House and Senate Banking Committees. Those changes will undoubtedly alter the roles of many institutions that previously have been deeply involved in mortgage finance. As the role of traditional mortgage finance institutions as a predominant source of mortgage credit is altered, the pivotal importance of the secondary mortgage market will increase, because of its ability to attract adequate supplies of mortgage credit from non-traditional, as well as traditional, investors.

Not only is the role of primary lending undergoing radical change, but the very nature of the mortgage is being altered. With the inflationary atmosphere and volatile interest rates of the recent past, investors are less willing to lock their funds into long-term, fixed-rate instruments. The proliferation of creative mortgage financing techniques in the conventional market inhibits standardization of the underlying mortgage instruments—a feature that is essential whenever loans are to be pooled and sold in packages as securities in the secondary mortgage market.

Recently, we have seen a tremendous growth in the use of adjustable rate mortgages (ARMs). More than 60 percent of non-government insured or guaranteed home mortgage loans made in 1984 were ARMs. This has made the average U.S. citizen more sensitive to problems, such as volatile interest rates, that result from the massive Federal deficit. Unless Congress acts quickly to cure the deficit, interest rates will continue to subject to volatility.

The GNMA-MBS is one of the most significant and successful mechanisms ever devised for attracting capital for mortgage investments. MBA believes that the continued strength of the GNMA-MBS program will assist rather than impede the development of a viable conventional MBS market, because trading in the GNMA-MBS establishes a benchmark for the pricing of conventional instruments, and serves as a model for the development of conventional MBSs.

In summary, the actuarially sound FHA mortgage insurance program and the GNMA-MBS guaranty program were created to foster support for homeownership and assure access to the credit markets. These programs have been remarkably successful in achieving these goals, at no cost to the Treasury. The FHA and GNMA-MBS programs will continue to address these needs efficiently, unless credit budget ceilings restrict their operations.

MBA urges this Subcommittee to maintain the credit budget levels for FHA and GNMA at $50.9 billion $68.25 billion, respectively, and to keep an eye on these programs throughout the year to insure that access to them is not restricted by the ceilings or by Administrative action. Similarly, MBA urges this Subcommittee to keep an eye on the VA home loan guaranty program in FY 1986, in the event that economic developments affect the program more adversely than the Congressional Budget Office study anticipates. With respect to the proposal of the Administration to impose additional fees, or taxes, on the Federal mortgage credit program, we urge you to reject the proposal.

MBA appreciates the opportunity to testify before this Subcommittee, and would be happy to provide additional material as needed.

FEDERAL EMERGENCY MANAGEMENT AGENCY

STATEMENT OF MR. LACY E. SUITER, PRESIDENT, NATIONAL EMERGENCY MANAGEMENT ASSOCIATION

ACCOMPANIED BY DON DE VITO, INCOMING PRESIDENT, NATIONAL EMERGENCY MANAGEMENT ASSOCIATION

Senator GARN. Next, Lacy Suiter, president of the National Emergency Management Association.

Mr. SUITER. Good afternoon, sir.

Senator GARN. Please go ahead.

Mr. SUITER. This is Mr. Don De Vito from New York and he is the incoming president of the National Emergency Management Association. I have asked him to come today. We have submitted prepared testimony for the record and, with your permission, I would like to make a few verbal comments.

Senator GARN. Yes; and your full statement will be included in the record.

Mr. SUITER. Thank you, sir. We also would like to thank your staff in helping work with us on what we should be presenting to you today. We are not asking, in the case of the National Emergency Management Association, for any increase in funding over the previous fiscal year. Indeed, the Governors of the different States working through the National Governors' Association, as well as the association I represent, who all of us work for Governors, indeed, want to work with you in the process of the budget reduction program.

However, the impact as presently out there on the Federal Emergency Management Agency's proportion of programs passed through the State and local governments at this point in time, since the States have not had an opportunity to react to it, will be more than devastating to us in terms of all the hazards for which we must prepare and respond, for all the things such as the earthquakes, the hazardous material accidents in the Nation, the fixed nuclear facilities, the natural disasters, and the other things that occur, not to mention even the administration of Presidentially declared disasters following the time that those things happen.

It takes those staffs, which are presently at the State and local government level, in order to get those particular things done. In other words, we are talking about the delivery system where the rubber meets the road, so to speak, at the State and the local government level.

Our problem with this, Mr. Garn, is the fact that this event has occurred, this budget reduction has occurred without any prior warning to the Nation's Governors that it could be expected. Our first knowledge of it, or an inkling of it, was on December 7 and the February's statement on February 6 was the next time we heard this.

MAINTAINING EXISTING LEVEL OF STATE GRANTS

Our legislatures had already met. We had no reason or no indication to believe that we could expect in fiscal year 1986 any reduction of these programs. Therefore, with our legislators, and many of us on 2-year budgets or were in other cycles, and the local governments have the same problem in there, we simply have not had the time to appropriate the moneys that would be necessary to continue this program. Indeed, we agree with the President and agree with the Congress that in some instances, we perhaps should have been looking at this program 2 or 3 years ago.

Basically, what we are asking for, sir, is the committee's consideration for a freeze, some reductions in the program, even; a freeze in the program to go along with something like the House authorization committee did last week freezing those funds which were passed through the State and local government with some reductions from those, even, at the fiscal year 1985 level, giving the State legislatures and the Governors in the States, as well as the local governments, the opportunity to revise these programs, determine their importance, and provide adequate funding to take those up in fiscal year 1987. That is the basic story that we have both in our prepared testimony and the other things that we are talking to you about.

We pledge to you that we will not be back to you next year asking for an increase in the funds over it once the Governors and the legislatures will have an opportunity to respond. Indeed, some States may not. Some States may not think the emergency plan is a necessary program. I am not in a position to answer that. I am prepared to answer to you that the people and the mechanisms in the field that the people and services in effect will be devastated if they don't have an opportunity to respond with the appropriations to those people at this point in time.

We have tried, in our efforts, to explain this problem to the former coalition of the people who are responsible. The Governors are responsible for emergency management and delivery of warning and lifesaving things at the State level, as well as the county and city executive on the local level. We are addressing those issues to them and letting them make the final decision. In the House authorization committee actions last week, they concurred with the position of the National Governors Association and the National Emergency Management Association with some reductions, obviously, over, but to essentially pass through to the State and local government the fiscal year 1986 by a vote of 14 to 1 essentially pass those funds that were passed through in 1985 with the proviso in there that the States then would have roughly, if the mark-ups came in early June or so, 12 to 15 months to appropriate their own funds and pick these programs up in 1987.

Our program is simple. It has five basic points to it, which are No. 1, what I just said, the fiscal year 1985 freeze, the hold harmless clause for the States and the local governments during this fiscal year only. It is coming up this fiscal year only, and these programs are specific to the State and local government: Give the State the opportunity to transition this 50–50 matching funds program in fiscal year 1987 and the reverse by the OMB directive that eliminates the students typing program for the emergency management institutes in Inesburg and the new one that is scheduled now for Carson City so that we can indeed continue to build a program from the start. Again, our strong concern is that had we had this indication of this warning a year ago—and perhaps we were not as clever as we should have been or perhaps as perspective as we should have been in seeing it coming. That is a mistake we obviously made. Now, though, we are caught in the middle of a situation for which we seek your help. I appreciate your time and listening to us on this.

Senator GARN. How would you prioritize the increasing of the funding in State and local programs among civil defense programs in order to maximize public safety?

Mr. SUITER. We have those, sir, in the Emergency Management Assistance Program; the Population Protection Program, and the Training and Education Programs that are out there. What is the other one—the Radiological Defense Program. We would then begin to cut back in the area of the State and local direction control and warning, reducing that down to the point of only picking up those things where we have already incurred obligations from fiscal year 1986 such as the telephone bills and all those things. We can't even cut the systems outright now on the warning. The last is the telecommunications warning, but primarily, those are through the Federal Emergency Management Association that provide national assistance for severe weather and things like that.

Senator GARN. Mr. Suiter, thank you very much.

Mr. DE VITO. The frustration here, as those of us in the emergency management business know, is it is not as if the Federal Government is not going to put up funds for the types of things that we attempt to do.

The point is, will the Federal Government provide the funds necessary for us to do the requisite readiness so that we can be better prepared to deal with these events which will occur —they are happening now in every State in the Union—when they happen so that we can minimize the effects on people and property when the events go down, or are they going to pay later in the recovery effort?

One classic example that comes to mind in my own State is a disaster declaration that occurred in 1977 with a blizzard that occurred in and around the city of Buffalo, N.Y. Millions upon millions of dollars in Federal recovery money was necessary as a result of the devastation when that particular event occurred. Yet this past winter, we had a blizzard in the same area of significant or greater magnitude, but we had an infrastructure in place and people were trained and systems had been worked out with the moneys that had been provided to us, and no Presidential diaster was necessary and no massive infusion of Federal funds was required.

I think that cost saving alone pays for the types of programs that we implement in any one States over a series of years.

So it is kind of like the old commercial. "You can pay now or you can pay later." We would much rather do it in the up front instance, where we can save lives and protect property, than later when we have to pull bodies out of rubble and reduce burning buildings. I don't mean to get you mad again, but the frustration is we see these funds are not going to be made available to do a professional management job. We just wonder at our own ability to communicate the dire need that is out there in this area.

Senator GARN. I understand what you are saying. It is the old cliche: An ounce of prevention amounts to a pound of cure. I know too many situations like that. In the large flood we had in Salt Lake City in the spring of 1983, a small reservoir that was originally supposed to be 50,000 acre-feet that was authorized in 1967 by the Congress, I came back to the Salt Lake City Water Commissioner to testify on behalf of that authorization, and it was approved. But after all these years, it has never been funded.

It grew. The original cost was about $20 million to build a 50,000 acre-foot reservoir. They cut it to 30,000 acre-feet at $85 million. Yet in that one year, it would have saved $100 million worth of damage. Can you believe that as a member of the Appropriations Committee last year, I was unsuccessful in getting $5 million for first year construction. I am not theorizing any more, but have actual proof that we could have saved $100 million in damage with an $85 million dam, and it still isn't funded?

Mr. DE VITO. It is clear the Chairman shares the concern.

Senator GARN. Well, it isn't in this subcommittee, but I didn't get the $5 million through the whole process.

Mr. DE VITO. We appreciate your understanding. Thank you, sir.

Mr. SUTTER. Thank you, Mr. Chairman.

Senator GARN. Thank you.

[The statement follows:]

STATEMENT OF LACY E. SUITER, PRESIDENT, NATIONAL EMERGENCY MANAGEMENT ASSOCIATION

Mr. Chairman and members of the Subcommittee: It is a pleasure for me to appear before the Senate Subcommittee on HUD-Independent Agencies to discuss the role and responsibilities of State government in preparing for and responding to the range of natural and technological hazards, and to specifically address the impact of the proposed Civil Defense budget on emergency management operations at the State and local government level. I would also like to take this opportunity to set forth NEMA's position on the proposed reductions, including a Civil Defense budget that we feel is equitable and one that does not adversely impact upon programs designed to ensure public safety.

Introduction

Protection of the population of the United States against the potentially catastrophic effects of natural and man-made disasters has long been recognized as requiring a partnership of federal, state and local governments. Since 1978 the administration and the Congress have encouraged improved emergency management capability by the establishment of the Federal Emergency Management Agency, by amendment of legislation to permit use of national emergency preparedness resources for natural disasters, and through increased fiscal support to State and local governments. Congressional support for the emergency management community has been provided in recognition of the increased vulnerability of communities across the nation to a range of natural and technological hazards and the need to develop and maintain a comprehensive emergency management system that is flexible, yet functional.

Increased Vulnerability to Hazards

The general trend across the nation towards increased urbanization, higher population densities and a growing dependence upon hazardous and toxic materials has been accompanied by a discernible increase in our collective vulnerability to a variety of natural and man-made hazards. The recent incidents in Bhopal, India and Mexico City perhaps signal a new generation of industrial related accidents whose implications for this country have yet to be fully investigated. Many of the variables that contributed to those accidents are present in many of our population centers.

The natural disasters that we have become all too familiar with include floods, tornadoes, hurricanes and earthquakes. While earthquakes pose the greatest potential for destruction, floods have traditionally caused the most property damage across the nation. In California alone, nearly 17,000 families were temporarily displaced in 1983 as a result of floods and landslides.

Earthquakes, which potentially impact 43 states, provide perhaps the greatest single challenge to emergency managers given the fact that there is virtually no warning and the area of impact can be several states, as is the case with the New Madrid fault in the Central United States. The potential damage and casualties that can be induced by an earthquake places a tremendous strain on local, state, federal and private sector resources in the response and recovery phases. Studies are currently underway that examine the impact of a damaging earthquake on state and regional economies. Particular emphasis is being focused on the vulnerability of defense related industries, notably in California, to a damaging earthquake.

While natural disasters have traditionally been the headline grabbers, the emergency management community at the federal, state and local level has focused attention on a new generation of hazards that are a by-product of a technologically oriented society. Three Mile Island demonstrated our vulnerability, however remote, to the dangers of a release of radioactive materials from a nuclear facility. Hazardous materials constitute another area of concern to emergency responders. Many sectors of our economy are dependent upon the production and distribution of increasing amounts of substances that are flammable, corrosive, poisonous or radioactive. It is estimated that there are approximately 250,000 daily shipments of these substances throughout the nation. Tránsportation accidents are on the increase in most states and local communities, sometimes resulting in scores of casualties. There is no indication that this trend will reverse itself in the near future.

In essence, the field of emergency management has undergone a significant transition since its inception under the Federal Civil Defense Act of 1950, when the focus was nuclear attack preparedness as called for in the language of act. While national preparedness is still an integral part of the civil defense system, the concept of comprehensive emergency management has evolved which recognizes and addresses the need to prepare for the full spectrum of natural, technological and man-caused emergencies that confront communities across the nation.

Comprehensive Emergency Management (CEM)

At least two factors served to accelerate the evolution of comprehensive emergency management from a concept to a functioning system for managing emergencies. The first was the amendment to the Federal Civil Defense Act of 1950, adopted in January 1981 (Public Law 920-81st Congress) that recognized that Civil Defense could be utilized "to provide relief and assistance to people in areas of the United States struck by disasters other than disasters caused by enemy attack." Congress effectively recognized the dual nature of civil preparedness.

The second significant event that facilitated the adoption of comprehensive emergency management was the creation in 1978 of the Federal Emergency Management Agency (FEMA), a consolidation of five federal agencies with responsibilities for disaster planning and response and related mobilization activities. For the first time, all federal disaster preparedness functions were under one roof, which in itself was a considerable accomplishment. From an administrative point of view, the consolidation provided a measurable improvement in cohesion at the headquarters and regional level. Communications and coordination between FEMA and State and local governments was improved considerably with the formation of a new directorate, State and Local Programs and Support (SLPS), headed by a Presidentially appointed Associate Director.

Paralleling the creation of FEMA was the formation of the National Emergency Management Association (NEMA), the organization of state directors of emergency management. The NEMA was organized to promote the interests, serve the needs and advance the objectives of emergency management at the State level of government, in partnership with FEMA and local governments across the nation. One of the most valuable initatives undertaken by NEMA has been the formation of the NEMA-FEMA Study Group, which meets every six months, and serves as a forum for frank discussion and interaction between NEMA's Executive Board and senior FEMA officials.

With guidance provided by FEMA, State and local governments have developed comprehensive emergency management programs that address the full spectrum of actual or potential hazards and emergencies that confront communities throughout the nation. The federal government, through FEMA, has provided funds and technical assistance to states to ensure a capability base for responding to national emergencies, i.e. Population Planning, Facility Survey, Emergency Management Training Programs. These programs are 100 percent federally funded in recognition of the primary role of the federal government in national preparedness. The states are permitted to use these funds for other hazards as long this does not detract from readiness to respond to national emergencies.

Under the Integrated Emergency Management System (IEMS), State and local governments have undertaken an examination of the entire spectrum of hazards that confront them; have determined the magnitude of the risk (vulnerability); assessed their jurisdiction's capability to respond to those hazards; and, based on capability shortfalls, have developed plans for closing the gap between existing and required levels of capability. These steps are the basis for integrating emergency management activities on a multi-hazard, functional basis.

Impact of Reduced Funding for Civil Defense

The proposed $119 million Civil Defense budget, which represents a 33 percent reduction from FY 85, would have an immediate and discernible impact on State and local emergency management programs across the nation. To determine the nature and scope of the impact, a questionnaire was distributed, through NEMA, to all state directors of emergency management. The questionnaire specifically addressed the impact of the administration's proposed Civil Defense budget on staffing levels of those programs that are considered to be essential to public safety. The following is a brief description of the key programs and the impact of the proposed budget reductions on emergency management operations at the State and local level.

Emergency Management Assistance (EMA) - The program that provides matching funds to support State and local emergency management programs, including personnel and administrative costs, EMA serves as the foundation for State and local programs throughout the nation.

Assuming a 12 percent reduction from FY 85 allocations for EMA, the states would experience a 10 percent reduction in positions and local governments would experience a 12 percent reduction. In many instances, counties would no longer be able to staff the disaster coordinator position due to a lack of EMA funds.

Radiological Defense Program (RADEF) - A 100 percent federally funded program, RADEF provides technical planning assistance to state and local agencies to prepare for and respond to incidents involving radiological hazards. Funds are also used to maintain and calibrate thousands of radiological instruments that are used in responding to radiological accidents.

Assuming a 57 percent reduction in Radiological Preparedness Planning and a 32 percent reduction in Radiological Instrument Maintenance and Calibration, as proposed in the FY 86 Civil Defense budget, the states would effectively lose the personnel who administer these programs, as reflected in the survey. This is a significant loss in view of our nation's increased vulnerability to radiological accidents. Sensitive instrumentation would rapidly deteriorate unless maintained and calibrated on a regular basis.

Population Protection Program (PPP) - A 100 percent federally funded program. PPP supports all hazards preparedness planning as set forth in the Integrated Emergency Management System. The PPF is an important link to local government in developing all hazard plans for communities throughout the nation.

The PPP would be substantially weakened by the proposed budget cuts. Assuming a 53 percent reduction, the survey of state directors indicated that approximately one half of all PPP positions would be eliminated. These positions represent an emergency management resource in all states and typically constitute the nucleus of an agency's planning staff.

Training and Education - Emergency management is a dynamic field and a comprehensive, up to date training and education program is essential to state and local programs if they are to be responsive to a broad range of natural, technological and man-made hazards. Through the years, emergency management training has brought the entire emergency response community together - law enforcement, fire, public works, medical - and in the process has brought greater coordination and efficiency to total response efforts.

The proposed 43 percent reduction in funding for the Training and Education Program would result in the elimination of the Exercise Training Officer position on most state staffs. The loss of this important training position, coupled with the OMB directive to eliminate the student stipend for the National Emergency Management Institute would undermine training programs across the nation. In addition to providing adequate funding to support a comprehensive Training and Education Program, it is vitally important that Congress amend legislation to reverse the OMB directive.

State and Local Direction Control and Warning - Funds in this category support two major activities, Warning and Communications Systems and Emergency Operations Centers (EOC's).

The proposed reduction (94 percent) in funds for these programs would seriously jeopardize the maintenance and servicing of existing warning and communications systems and would preclude expansion of warning and communications systems across the nation. These systems, together with the EOC's, are essential to the protection of life and property in the event of a disaster or emergency.

Telecommunications and Warning - Provides basis for all emergency telecommunications interconnections between Federal and State Levels, and serves as the only Federal, State and local 24 - hour warning interconnections (NAWAS). Funds in this category support operations and the continued modernization (commenced in FY 84) of existing obsolete National Radio, Teletype and Warning Systems.

The proposed reduction (51 percent) in funds for these programs will severely impact and impede completion of modernization efforts in all national system upgrades. For example, approximately one half of the states will have new radio equipment by the end of 1985 and the other half will still have antiquated radios on the same system.

Implications of Transition to 50-50 Funding Match - The proposal to transition those programs that are currently 100 percent federally funded to a 50-50 match in FY 86 would create an immediate hardship on the states, particularly in the Population Protection Program. Under the proposal, all states will be given the option to either fund one half of the current staff at the 100 percent level or all of the current staff positions of these programs at 50 percent of the FY 85 level, which would require additional state dollars. It is too late for the states to take the latter option (50 percent matching funding) due to state budgeting cycles. This action would require at least twenty-four months transition time if the state budget authorities would even agree to such funding proposals. Therefore, sufficient lead time is necessary to study the implications of this proposal on State emergency management programs.

In essence, it can be demonstrated that the proposed FY 86 Civil Defense budget of $119 million would significantly weaken and undermine efforts at the State and local level to develop and maintain an effective emergency management system that is responsive to the spectrum of natural, technological and man made hazards. The Integrated Emergency Management System represents a logical and cost effective approach to emergency management. The success of IEMS, however, is closely tied to the integrity of the various functions or components of the system. Unfortunately, every state can provide examples of disasters and/or emergencies where there were unnecessary casualties or prolonged suffering due to a breakdown in one of the functions whether it is warning, communications, training or another component of the system.

NEMA'S POSITION ON PROPOSED REDUCTIONS

NEMA has worked closely with a number of government agencies and professional associations that share a concern over the federal deficit, yet who also recognize the need to maintain a State and local emergency management program infrastructure that is adequately supported with federal funds. In particular, NEMA has received considerable support and cooperation from the National Governors Association (NGA), the National Association of County Organizations (NACO), the National Coordinating Council on Emergency Management (NCCEM), U.S. Joint Fire Council and the American Red Cross. The concerns of these organizations are reflected in NEMA's position on the proposed reductions to the FY 86 Civil Defense Budget, as outlined below.

1. The President and the Congress are urged to maintain appropriations for emergency management programs under the Civil Defense Appropriations at a level not less than the $181.4 million appropriated for FY 85.

2. NEMA supports legislation that specifically identifies funding levels to be passed through to State and local governments, and furthermore that the funding levels for FY 86 should not be lower than FY 85 levels.

3. NEMA specifically supports a proposal to maintain the following programs at FY 85 funding levels: State and Local Emergency Management, Radiological Defense, Population Protection, State and Local Direction, Control and Warning, Training and Education, and Telecommunications and Warning. These programs are considered to be essential to ensuring public safety through the integrated emergency management system.

4. NEMA, in cooperation with the NGA, NACO, and NCCEM will cooperate with the Congress in a study during FY 86 of changes which might be appropriate in program structure, funding formulas, and procedures for administration of federal assistance to states.

5. NEMA proposes that Congress amend legislation to reverse the OMB directive to eliminate the state stipend for the National Emergency Management Institute and the National Fire Academy. There is a consensus among the emergency management community that an elimination of the student stipend would significantly, if not dramatically reduce the enrollment at the national training facilities.

Conclusion

Significant, measurable progress has been made since the creation of FEMA in developing a comprehensive emergency management program at all levels of government that is responsive to our nation's increased vulnerability to natural and man-made hazards. Under the Integrated Emergency Management System, State and local governments have been able to assess their capability to effectively respond to a spectrum of emergencies and to develop realistic plans to maintain and to eventually upgrade their emergency management capability.

The proposals that are outlined in the paper are guided by two fundamental and interrelated factors: 1) that a freeze in Civil Defense funding at the FY 85 level is a prerequisite to maintaining our current national civil preparedness capability; and 2) that a reduction in funds from FY 85 levels, particularly in those programs which are essential to public safety, would inevitably result in unnecessary and unwarranted human suffering.

5. NEMA proposes that Congress amend legislation to reverse the OMB directive to eliminate the state stipend for the National Emergency Management Institute and the National Fire Academy. There is a consensus among the emergency management community that an elimination of the student stipend would significantly, if not dramatically reduce the enrollment at the national training facilities.

Conclusion

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FEDERAL SUPPORT FOR COMPREHENSIVE EMERGENCY MANAGEMENT
(CIVIL DEFENSE PORTION OF FEMA BUDGET; NEMA FY 86 RECOMMENDATION)

	Program Category	FY 85 Current Estimate	FY 86 FEMA Proposed	% Reduction	FY 86 NEMA Recommendation
I.	Programs Critical to State and Local Government Public Safety				
	A. State and Local Emergency Management	58,800	51,300	13	58,800
	B. Radiological Defense	10,274	6,274	39	10,274
	C. Population Protection	12,948	6,148	53	12,948
	D. State and Local Direction, Control and Warning	12,056	681	94	12,056
	E. Training and Education	14,918	8,528	43	14,918
	F. Telecommunications and Warning	32,339	15,900	51	24,524
	SUBTOTAL	141,335	88,831	37	133,520
II.	Other Civil Defense Appropriation Categories				
	A. Protection of Industrial Capability	1,500	-0-	100	-0-
	B. Research	2,287	487	79	487
III.	FEMA Salaries and Expenses	32,832	29,807	9	29,807
	TOTAL	177,954	119,125	33	163,814 (7.9% reduction)

STATEMENT OF HOWARD BOYD, CHAIRMAN, JOINT COUNCIL OF NATIONAL FIRE SERVICE ORGANIZATIONS, ON BEHALF OF INTERNATIONAL SOCIETY OF FIRE SERVICE INSTRUCTORS

Senator GARN. Mr. Howard Boyd, chairman, Joint Council of National Fire Service Organizations.

Mr. BOYD. Thank you, Senator.

I suppose that all of us who are a little older thrill to your recent activities in space and were delighted to see that.

Senator GARN. You weren't nearly as thrilled as I was.

Mr. BOYD. Floating around in a loose way.

Senator GARN. The best roller coaster ride in the whole world.

Mr. BOYD. I think to me, and I have been in government for 40 years, but I think this afternoon has been a real eye opener, as far as I am concerned, with your philosophy on government. I might only suggest that I think I have an answer: If we could elect a few more people with your philosophy of government, I think we could settle some of our problems. People don't have the courage of their convictions.

Senator GARN. We would settle some and cause others.

Mr. BOYD. There aren't too many people with the courage of their convictions, and I think you know that. I am not buttering you up.

My name is Howard Boyd, and I am currently serving as the chairman of the Joint Council of National Fire Service Organizations. We represent some 2 million people in fire services organizations: The Fire Marshall's Associations, the International Association of Arson Investigators, the Fire Chiefs and the Fire Fighters, the International Fire Service Training Association and the International Municipal Signal Association, the International Society of Fire Service Instructors, the Metro Chiefs of the International Association of Fire Chiefs, the International Association of Black Professional Firefighters, the National Fire Protection Association, and the National Volunteer Fire Council.

U.S. FIRE ADMINISTRATION/FIRE ACADEMY

When you get those 11 organizations around the table and they agree on anything, I think that we both understand some of the problems. One of the things that we have agreed on through the years and, in fact, have been instrumental in getting, was the President's Commission established first and then in the development of America Burning and then in the establishment of the Fire Cabinet and with the U.S. Fire Administration and the fundamental basis of those, and I'm not going to burden you with some facts and figures, but the fundamental background and the basis of those wasthat we wanted to do just exactly what you have asked for today, and that is, we want to teach the Fire Service in America what fire prevention can do rather than fire suppression.

In doing that, the U.S. Fire Cabinet has set up the courses that it has been offering to the Fire Service in America. Now, the Triangle Institute in North Carolina recently came up with data that said that fire prevention is 10 times as cost effective as fire suppression. America

Burning pictured this, and yet said that we are spending 95 percent of our dollars on fire suppression rather than on fire prevention. This is what we are attempting to do in the U.S. Fire Administration and in the Academy, so to turn the thinking of the Fire Service in America around in many ways because of our 300 years of history and of devotion and dedication of something like 2 million people in the Fire Service with 80 percent of them volunteers.

So this is the kind of action that we are attempting to pursue in those two organizations. This fire program of the U.S. Fire Administration and the Academy, we think, are both not only effective, but they are very cost effective. They still lack personnel. The financial resources necessary to meet the Fire Service and to make the impact on the Nation's fire problems are, I could relate very well with you a number of years ago, Percy Bugby of the National Fire Protection Association said:

> I thought when the fire losses in America reached a billion dollars a year, that the taxpayers and the people, the insurance industry, and everybody else would rise up and we would want to do something about it.

And we would really want to spend our efforts in prevention, just as you thought about the deficit in our budget. It didn't happen. It is $5 billion now. The only way we can see to cut it is through this business of a reduction of the incidents. The Joint Council of Organizations recognizes the spirit of the President as it relates to the freezes and reductions, and they feel that the Fire Services practices austerity. In fact, we know we have practiced austerity.

I have seen too many men go into action and fighting fires without the proper protective clothing. I have seen too many of them die because they were giving their lives for other people.

We, therefore, in the joint council, recommend in fiscal year 1986, the appropriations of $9,736,000 for the U.S. Fire Administration with 20 full-time employees, and the National Fire Cabinet of $13,612,000 with 80 full-time employees. Then in addition, we are requesting that the committee appropriate funds for the Students Stipend Program of the National Fire Academy at the 100-percent level, and then if it doesn't impact on any of the other fire programs, we are suggesting that the Center for Fire Research be funded at $6 million for the fiscal year of 1986.

On behalf of the joint council, sir, I thank you for the opportunity to present this testimony. My congratulations on hoping that you can do something, too, because I have grandchildren, and I am a little worried about the state of the Nation we are leaving them in. We are handing them a load and a debt that we didn't inherit to begin with, sir.

Senator GARN. I have grandchildren, too. As a matter of fact, the youngest one is about 7 hours old. [Applause.]

Mr. BOYD. Oh, congratulations, more so.

Senator GARN. That is why I was not here this morning for the morning hearings. I was out at the hospital worrying with the father.

Mr. BOYD. Yes, sir. That is an experience you have to live through, yes, sir.

Senator GARN. I am doing it rapidly. I had no grandchildren until January. I had a grandson born in January, a granddaughter this morning and my son's wife is due in June, another month. I have productive children.

Mr. BOYD. They are coming along very fine.

Senator GARN. Thank you very much. I appreciate your testimony.

Mr. BOYD. Thank you, sir.

[The statement follows:]

STATEMENT OF HOWARD BOYD, CHAIRMAN, JOINT COUNCIL OF NATIONAL FIRE SERVICE ORGANIZATIONS

My name is Howard Boyd. I am currently serving as the chairman of the Joint Council of National Fire Service Organizations.

It is indeed a pleasure to submit testimony in support of the appropriations of the United States Fire Administration and National Fire Academy within the Federal Emergency Management Agency and the Center for Fire Research. This testimony is presented on behalf of the eleven member organizations of the Joint Council as listed herein:

Fire Marshals Association of North America
International Association of Arson Investigators
International Association of Fire Chiefs
International Association of Fire Fighters
International Fire Service Training Association
International Municipal Signal Association
International Society of Fire Service Instructors
Metro Chiefs of the International Association of Fire Chiefs
International Association of Black Professional Fire Fighters
National Fire Protection Association
National Volunteer Fire Council

We feel the programs of the USFA, NFA and CFR are vital to this nation. These programs have gone a long way in addressing the recommendations of *America Burning,* the official report of the National Fire Prevention and Control Commission. To reduce any efforts at this time would have a significant impact on the progress to date.

I will not present to you as part of this testimony the facts and figures about life loss, property loss and the magnitude of the injury problem caused by fire. These statistics have been presented at previous hearings or covered in the written testimony presented by other members of the Joint Council team, and are available to you. These statistics represent the past. Instead, this testimony will reflect the present and the future.

The United States Fire Administration within the Federal Emergency Management Agency is divided into four offices: Fire Policy and Coordination; Firefighter Health and Safety; Fire Prevention and Arson Control; and Fire Data and Analysis. The Government Affairs Committee (GAC) of the Joint Council worked very closely with the USFA to establish priorities for each of these program areas and help guide the allocation of resources towards the primary mission of improving fire safety in the United States.

While the major thrust of the Joint Council's efforts during the most recent past was devoted towards helping to re-establish the program priorities for the United States Fire Administration, the working relationship with the National Fire Academy continued.

Statistics for the National Fire Academy will not be presented as part of this testimony. They, too, are available to your Committee, if desired. However, note should be made that the successful delivery of quality courses both on campus and in the field is causing a major admissions problem resulting in a large majority of applications received being rejected because of classes filling up nearly a year in advance.

While the fire programs (USFA and NFA) are both effective and cost-effective, they still lack the personnel and financial resources necessary to meet the needs of the fire service and to make the desired impact on the nation's fire problem.

The Joint Council is also aware of the important work being conducted by the Center for Fire Research at the National Bureau of Standards and supports the budget request of the Center for Fire Research of the National Bureau of Standards so long as the funding in no way reduces the recommended funding of any other federally funded fire program.

While the Joint Council of National Fire Service Organizations recognizes the spirit of the President and the Congress as it relates to freezes and reductions, they feel the fire service has practiced austerity since the inception of the federal fire focus. Therefore the Joint Council recommends FY 86 appropriations of:

The United States Fire Administration	
Fiscal Year 1986	9,736,000 20 FTE'S
The National Fire Academy	
Fiscal Year 1986	13,612,000 80 FTE'S

In addition, we request the Committee appropriate funds for the Student Stipend Program at the National Fire Academy at a 100% level.

The requested appropriation for the Center for Fire Research is:

Fiscal Year 1986	6,000,000

On behalf of the Joint Council, I thank you for the opportunity to present testimony.

STATEMENT OF LARRY LARSON (WISCONSIN), ASSOCIATION OF STATE FLOODPLAIN MANAGERS, INC.

ACCOMPANIED BY JEAN BROWN

Senator GARN. Next, Mr. Larry Larson, the Association of State Floodplain Managers, Inc.

Mr. LARSON. Thank you, Chairman Garn.

I am Larry Larson from the association. We appreciate this opportunity. I am an employee of the State of Wisconsin. I handle the Flood Plain Management Program that is handled under SABO in Wisconsin and I coordinate the National Flood Insurance Program which is, of course, under the FEMA budget.

I am here representing the association, which is an organization throughout the United States comprised of my counterparts in other States managing other flood plain programs and working with local flood plan managers who are also a part of our association in trying to deal with the funding programs at the local level.

NATIONAL FLOOD INSURANCE PROGRAM

I want to just briefly cap some of the points in our written testimony which you have. The highlights, the four points I want to highlight are positions. No. 1, we do oppose the off-line budgeting for flood plain management; No. 2, we oppose an insurance premium rate increase if it applies to existing structures; three, we urge retention of the line item identifiable source for technical assistance to communities by using States and others. That has recently been done through the State Assistance Program. We are now in a Community Assistance Program; and four, we urge restoration of some of the training and education dollars for field deployment services, in other words, getting training out closer to local communities and suggest that might be done by shifting the funds for NATC west for the local program.

Let me go back to the first two key points. First, in the off-line budget, it is proposed the Flood Plain Management Program within FEMA simply be run through the National Flood Insurance Fund as an off-line item. We would oppose that move. It really doesn't save dollars one way or the other, but we do believe it will result in a loss of congressional oversight. We do not think that is wise. We think that congressional oversight has been very good in this program over the years and urge its continuation. We believe the off-line budget would have the effect of raising flood plain insurance premium rates. There is a great propensity to want to make the program totally actuarial, and the more activities you charge to that fund, the higher premiums you have to have to meet that goal.

Second, we also think that such an activity could limit FEMA's ability to help communities and States do anything except those things that were insurance related. If the money only went to the insurance fund, communities need help in many other areas for flood plain management, warning, evacuation, all those other activities that don't reduce total flood losses and costs at the local, Federal, and State level.

INSURANCE PREMIUM RATES

Relative insurance premium rates, as you know, the administration has proposed that there be a 14-percent improvement in 1986 to 10 percent in 1987 in the payout to income ratio. We understand that FEMA has talked about a number of ways of doing this. One would be a rate increase. We have no problem with charging actuarial rates. What it would really end up being would be on new construction. I think it is perfectly proper for someone to build a new structure and be faced with the true cost of what has to be covered for the insurance.

The concern of ours is increasing rates on existing structures which may have been in the flood hazards from 10, 50, 100, 150 years before the NFIF was in existence.

We are opposed to those rate increases for this reason: It is that group in the community that keeps the community in the National Flood Insurance Program. It is those people buying affordable rates that gives the bottom-up incentive to the communities to say, "Stay in this program."

If we lose those people, we are going to have a disincentive, and those people are going to say to their community, "Let's get out of this program," and there will be no flood plain management to reflect their losses.

Some of the other suggestions we have here on rate increases, such as charging a surcharge in communities that are on probation for not doing good flood plain management, it is a positive approach, it is an incentive-disincentive approach that we approve of. We would rather see it as an incentive approach, but it is a step in the right direction. The competitive loss FEMA has talked about, three or four more losses in 10 years, you would not pay premiums. We do not oppose the concept. We would rather see that on the dollar amount of the losses rather than the number of events.

Evaluation of the existing policies to make sure they are rated properly; that we favor.

That is our position. We appreciate the efforts of this community to work with us. I would answer any questions you would have, Senator Garn.

Senator GARN. Thank you, Mr. Larson. I appreciate your willingness to testify, and I have no questions for you at this time.

Mr. LARSON. OK.

[The statement follows:]

STATEMENT OF A. JEAN BROWN, CHAIR, ASSOCIATION OF STATE FLOODPLAIN MANAGERS

Effective floodplain management coupled with sound flood insurance administration can save lives and property - as well as federal dollars - from the floods that occur regularly along our rivers and coastlines.

The Association of State Floodplain Managers urges your support of four key positions on the 1986 budget for the Federal Emergency Management Agency:

- o Use loss reduction incentives to reduce the insurance payout to premium income ratio; Do not increase premium rates for structures that existed prior to the National Flood Insurance Program.

- o Appropriate funds for floodplain management programs rather than rely solely on National Flood Insurance Fund revenues.

- o Retain an identifiable appropriation for technical assistance to states and communities.

- o Continue adequate regional staff coverage and begin training staff deployment to deliver technical assistance and professional improvement to states and communities.

The Association of State Floodplain Managers represents professionals in flood hazard reduction in all fifty states. The goal of the Association is to promote effective floodplain management through cooperation between agencies and levels of government. Cooperation for the exchange of technical information, management techniques and program progress is critical to sound floodplain management. In turn, sound floodplain management saves lives, protects property and reduces federal disaster relief and insurance claim expenditures. The following paragraphs describe the rationale for the positions listed above.

REDUCING THE PAYOUT TO INCOME RATIO. The Administration has directed the Federal Insurance Administration to increase the difference between premium income and claim payout by 14% in fiscal year 1986, and by an additional 10% in 1987. The increase could be accomplished either by a rate increase or by loss reduction incentives.

The most progressive way to meet the Administration directive is a system of incentives and penalties that promote community flood loss reduction actions. A rate increase for communities not properly administering floodplain regulations is appropriate. A penalty for communities with repetitive losses, tied to the dollar amount of the losses (not to the number of claims), would be effective. To encourage property owners to floodproof their property, obey evacuation orders and otherwise prevent losses, the penalty should be levied against insurancce claim payouts. In addition, evaluation of existing insurance policies to insure proper rating or to enforce building standards in view of recent alterations (e.g., enclosing ground floors in coastal areas) would contribute to loss reduction. Finally, significant gains could be made by adjusting the insurance rate structure to reflect obvious concentrations of flood damage, such as coastal areas.

Large rate increases, particularly for structures that existed before the national insurance program, can substantially hamper loss reduction efforts. Progress toward actuarial rates for new structures, based on flooding history, is realistic and necessary. Rate increases could be accelerated somewhat in B and C zones, where flood insurance is available but not mandatory.

The rates for structures that existed prior to the program should not be increased. It is the owners of these buildings that urge local officials to participate in the flood insurance program. If insurance rates are so high as to be unattractive, these citizens will no longer support a local floodplain management program. Without support, communities will find it hard to regulate for flood loss reduction.

Flood insurance rates were substantially increased in 1982 and 1983. Continued large rate increases have - and will - result in people dropping their flood insurance policies. The two major impacts of this loss in policy base will be: (1) In smaller floods, the financially-strapped property owners who could not afford insurance will be hurt by flood losses; (2) In large floods, private, state and local resources will be exhausted and federal assistance will be required. If the majority of flooded properties had been insured, losses would be covered and partially offset by accumulated premium income. If most people have dropped their insurance, the pressure for a federal bailout will be tremendous. These are precisely the circumstances that created our national program of subsidized flood insurance. The federal treasury will not only suffer tremendous losses but there will also be less premium income to offset the loss.

NEED FOR A FLOODPLAIN MANAGEMENT APPROPRIATION. FEMA proposes to run the floodplain management program with funds from the National Flood Insurance Fund (NFIF). In concept, all costs and income of the flood insurance program will flow through the Fund. Neither floodplain management costs nor insurance claim payouts will appear as a line in FEMA's budget. Nonetheless, federal taxpayers will reimburse the Fund for program costs and flood losses at the end of each year.

Effective floodplain management programs, ones that save lives and property, are much more than just the floodplain regulations required for participation in the insurance program. Flood warning and evacuation systems, building codes, tax adjustments, stormwater management, structural protection, subdivision regulations and many other measures must be used in addition to the required regulations. Every one of the 17,000 flood prone communities in the United States requires a slightly different set of measures. Constraints on the use or amount of NFIF funds may prevent FEMA from helping communities find the best measures for reducing their flood damages.

Off-line budgeting might allow the diversion of funds from floodplain management to other uses or permit shifting of priorities within floodplain management. With flood losses mounting and with FEMA's already-strapped human and financial resources, the nation can ill afford to see the floodplain management effort decrease further.

IDENTIFIABLE TECHNICAL ASSISTANCE FUND. There should be an identifiable source of funds for technical assistance to states and communities. FEMA has proposed a $3.2 million Community Assistance Program, but this amount does not appear as a line item. The funds are slated to come from the flood hazard reduction budget. Under the new Community Assistance Program, FEMA will coordinate the efforts of other agencies and states to provide technical assistance. As with off-line budgeting, this may permit shifting of funds from direct technical assistance.

Technical assistance is critical to improving the fiscal soundness of the National Flood Insurance Program. As thousands of communities enter the regular phase of the insurance program, they will need initial assistance to adopt ordinances and continuing assistance to interpret maps, issue permits and grant variances. Variances in particular can completely negate the effect of regulations, worsening flood losses.

Many communities cannot support staff with specialized expertise in floodplain management. Even well-trained staff need assistance with new requirements and unusual situations. Unfortunately, the number of FEMA personnel available to assist communities has dropped from over 200 to approximately 120. At the same time, the number of communities in the regular phase of the insurance program has risen from 7,000 to 12,000. In recognition of this need and of the potential for cooperation, the State Assistance Program was created. This program built up the States' capabilities to assist communities. As FEMA resources become more stressed, the State capability to assist communities will become critical to flood loss reduction.

Communities' need for assistance far exceeds FEMA's ability to provide it even with State assistance. While we realize the need for fiscal restraint, investing the originally authorized $6 million now (rather than $3.2 million) will certainly reduce future federal expenditures.

REDUCTION IN REGIONAL OFFICES. The Administration has directed FEMA to present proposals for reducing the number of regional offices from ten to six or four. Reducing the regional coverage will have the same impact as reducing technical assistance resources. It does not save money. The nation's taxpayers will foot a larger bill for disaster relief and insurance payments if loss reduction efforts are cut.

DEPLOYMENT OF TRAINING STAFF. Like cutting technical assistance, reducing funds for training and education of floodplain managers is counterproductive. At the same time as funds for participants' travel to training is being cut, funds are being provided to open a new training center in Nevada (called NETC-West). The training center in Maryland has been of questionable value to most state and local personnel because of the expense of attending. The amount of federal money required to bring groups of participants to the training center and to build the new center could be more productively applied towards sending training staff to state and local programs. We urge reinstatement of $4 million for the "Field Deployment System." With decentralized training, costs are not only lowered, but programs can be tailored to special regional or local problems and existing professional forums can be used.

OTHER CONCERNS. We do not want our silence on other budget issues to be interpeted as indifference. Adequate funding of Section 1362 (relocation programs) is critical to permanent reduction of damages to existing floodplain uses. Adequate resources for engineering studies and restudies are essential for communities to be able to identify areas where regulation is needed to reduce losses. The proposed budget continues funding for studies but at a lower level. Reduced funds means that communities still waiting for original studies cannot begin to regulate floodplain development effectively. High flood losses are occurring in rapidly developing areas where construction is altering watershed conditions and increasing the risk of flood damage. Restudies are urgently needed to prevent flood losses from increasing. We oppose any cut in FEMA's budget for flood insurance studies.

In summary, the positions described above will help guarantee reduced federal expenditures in the future for disaster relief as well as reducing the ongoing federal obligation for flood insurance.

Senator GARN. If I could have Mr. Robert J. Rigby come to the table? Is he here?

If you would, go ahead with your testimony. When you are through, is Mr. John Glenn here?

Mr. Glenn, when Mr. Rigby is finished, if you would come up and present your testimony, we will certainly make certain that all of your complete statements are put in the record.

Mr. GLENN. I would like to say as a shirt-tailed cousin to the first astronaut, welcome back.

Senator GARN. I was going to ask you that. It is the most thrilling thing that happened to me when I got back was when I came onto the floor, my colleagues stopped whatever they were debating and applauded me, but that wasn't the thrilling thing. It will never happen again, believe me. [Laughter.]

But John came over and gave me a big hug on the floor, and I'm a Johnnie-come-lately astronaut. When John Glenn went, it was scary. Nobody had ever done it before. I still have so much admiration and respect for him, because that took real courage when he got in that little Mercury capsule; mine was the 16th shuttle flight. A lot of people had gone; it was a very proven system, relatively speaking, than what John did.

I have made more orbits, but John had a heck of a lot more courage to do what he did at the time. You have got a good name. John and I were sworn in the Senate together. Literally, Garn and Glenn, they don't even give you the dignity of swearing you in individually. John and I stood together a little over 10½ years ago and were sworn in together, a great friend of mine. If you are a shirt-tailed relative, I would be proud of that fact.

Mr. GLENN. As a Presbyterian minister, I always tell people, I can get people farther than either of you got. [Laughter.]

Senator GARN. I certainly hope so. [Laughter.]

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

STATEMENT OF ROBERT J. RIGBY, JR., EXECUTIVE DIRECTOR, JERSEY CITY HOUSING AUTHORITY, ON BEHALF OF COUNCIL OF LARGE PUBLIC HOUSING AUTHORITIES

Senator GARN. Please proceed. Thank you very much.

Mr. RIGBY. Thank you very much, and good luck with your third grandchild.

As Mr. Garn mentioned, the full text of the testimony has been previously submitted for the record, so I will just give summary points. My name is Robert Rigby. I am the executive director of the Jersey City Housing Authority. I am testifying today on behalf of the Council of Large Public Housing Authorities, an organization which includes 35 PHA's that together manage almost half of the public housing stock nationwide and receives slightly over half of all public housing operating subsidies.

We would first like to thank the committee members and staff for both the opportunity to testify as well as their strong support for the public housing program support which we recognize was during some difficult budget years, one similar to the one we fact at the present time.

I will start with our specific request. Regarding operating subsidies, the council requests that your committee appropriate $1.3 billion, our estimate for full funding of the PHA for fiscal year 1986. HUD's estimate of only $1 billion includes overly optimistic assumptions regarding both utility rates and projected tenant grant payments. These assumptions seem premised more on a backed-into budget strategy and less upon solid evidence.

Without getting embroiled in a numbers debate with the Department, we would simply suggest that prudent policy and practice dictates rejecting the hypothesis which could cause the greatest harm. If only funded at $1 billion and HUD's assumptions are wrong, as they appear to be this year, the impact of the 16-percent aggregate reduction and for some PHS, much, much higher, must be totally absorbed in reduced management and maintenance services, since almost all other costs, utilities, insurance and the like, are fixed, they must be paid first.

We could not maintain even a semblance of decent, safe, and sanitary housing if faced with budget cuts of this magnitude. Regarding modernization, the council requests that the CIAP or modernization program be continued in 1986 at least at the funding level for 1985. Thanks to the consistent, bipartisan support by this committee and its House counterparts, much progress has been made in catching up on decades of neglect.

Any retreat from that effort, however, would be revergent to past policy mistakes, generate additional disrepair, and cause future and past operating capital costs to increase on what they otherwise would be.

We would like to make special note of Phil Sampson's exemplary leadership on the research and supervisory group which is overseeing the ongoing study of public housing modernization needs. Results of that study, targeted for next year, should give all of us a more accurate assessment of the level of catchup still outstanding and better shape the contours of a transition to alternative systems for capital replacement and improvement, including the often discussed reserve approach.

We would add that the council also strongly urges that the financing mechanism for modernization remain tax exempt exempt obligations, through which annual outlays, so much the current budget issue, remain relatively low with program costs being spread over many years and appropriately over many generations of beneficiaries.

Regarding the section 8 existing moderate rehab and new construction, the council urges support for continuing these housing efforts at the levels currently being considered by the committee to at least address a small portion of the ever increasing waiting list for assisted housing, currently estimated at over three-quarters of a million households, with waiting times approaching a decade not at all uncommon.

We also request that the committee reject HUD's proposed freeze of fair market rents. If these fair market rent levels do not approximately keep pace with local housing markets, the supply of perspective private sector housing decreases and the growing difficulty applicants have in finding decent housing, especially larger families, often minorities, will be further exacerbated.

Please allow us to make a full use of at least the resources currently at our disposal.

There is much more that could be said, but my time is about up. I would close, therefore, with two pleadings.

First, the record of Federal appropriations and authorizations over the last 4 years clearly reflects that programs serving low and moderate-income families, in general, and housing programs, in particular, have borne their fair share and more of reducing Federal expenditures.

Any further reductions would seem to offter extremely small gains at the cost of potentially enormous hardship.

Second, though the council fully recognizes the value that our Nation places on home ownership, it seems the Congress is willing to continue massive housing subsidies to middle- and upper-income households provided indirectly through the mortgage interest and tax deduction provisions of the tax code, estimated to exceed $40 billion this year alone, while simultaneously squeezing housing assistance for people who are much poorer. Although we indeed face a serious deficit, the United States remains a prosperous nation, and in a prosperous nation, it seems a responsible policy for a nation to assist people with less resources and fewer economic resources, at least if not more than ones with more choice and greater resources.

If this is not the time to seek additional funds to help so many families needing housing assistance, at least we need to continue serving those who currently we assist.

We again thank the committee for permitting us to testify and for your past support, and I would be happy to answer any questions you may have.

Senator GARN. Thank you, sir. I have got a few questions here. The subcommittee has an annual process which, seemingly, every year is involved in picking some number for operating subsidies somewhere between the low end proposed by HUD and the high end proposed by CLPHA. It has been suggested that the formula be replaced by an objective formula which clearly details allowable costs and permits the full funding of such costs. Would you support such a proposal?

Mr. RIGBY. I think that, No. 1, any objective formula that is an across-the-board nationwide formula would suffer somewhat from the same deficiencies the performance funding system itself does. Currently, the system of subsidy is purported to be objective. The question and difficulties and differences in the estimates come in. For example, this year, HUD is predicting a 3-percent decrease in utility rates. CLPHA is predicting approximately a 3-percent increase, we believe, although oil prices may plateau or slightly decrease; certainly gas and electric prices are increasing.

In fact, neither of us, either CLPHA or HUD, absolutely knowns, and the same situation exists on tenant rents, and if you factor in a variety of other formulas to whatever system was adopted, you would have the same kind of unknowns, which is why we urged that in choosing the level to be appropriated, No. 1, we look at our records. HUD has been wrong the past 4 years. The numbers CLPHA has submitted have been very close to what the end result has been; and No. 2, again, it seems reasonable public policy to choose the hypothesis which creates the least harm. If CLPHA is wrong and the system generated does not require as much operating subsidies, at worst, moneys can be rolled over to another year, or expenditures would have been lower.

If, however, CLPHA is correct and yet HUD's numbers name only $1 billion will be assumed, there will be serious difficulty to operate the system.

Senator GARN. Do you believe that we are seeing, after 5 years of substantial CIAP funding, a return to the taxpayers in terms of measurable lower operating costs, higher utilization of existing public housing units, and better housing in general for the lower income families?

Mr. RIGBY. I think that would be unequivocal to answer in the affirmative. I will give you merely an anecdote in Jersey City's case.

Through the investment of CIAP funds, especially targeted toward energy conservation, we are saving approximately $1.2 million per year in what fuel and utility costs otherwise would have been. That is per year that we would have been spending from now on.

That situation is not at all uncommon. Jersey City is neither saint nor sinner in the public housing world, and our colleagues at CLPHA, I am sure each could testify accordingly.

In terms of the individual, and utilities become an extremely big budget item, especially in the East, Northcentral portions of the country, 40 to 50 percent of the country, percent of the operating expenses. When you are approaching margins near 20 percent, I think the kind of return being secured on the capital investment is quite substantial.

In terms of management efficiencies, the return is probably less because of the margin for it was less to begin with, but the performance standards that have been adopted by numerous housing authorities have been recently documented by CLPHA. I think both the heightened awareness of the limited resources available as well as just good management practices has generated more and more of this.

What would be quite helpful, however, in terms of savings, if some of the unpredictability of how much money you were going to have year after year was removed, each year it is sort of a toss-up. We have got to have my program; we have got to have operating subsidies. We have to get 90 percent of VSF. I don't even mean the differences in utilities. It is just very difficult to operate and plan in that kind of an environment. When we are often compared to private sector counterparts, I am still looking for the corporation that doesn't have a clue as to whether they are going to be in business next year outside of depending upon the good wishes and compassion and common sense of committees such as this.

Senator GARN. Thank you.

What is your waiting list in Jersey City?

Mr. RIGBY. About 4,000 conventional units and 1,000 section 8's. We have approximately 4,000 on the conventional waiting list.

Senator GARN. Humans or families?

Mr. RIGBY. Families, households, and 4,500 waiting for section 8 existing housing certificates. The vacancy rate is 0.2. The turnover rate is 5 percent. Even waiting list figures, I am sorry, although that is the most common question under estimates, effective demand because it is so long a wait that people just don't bother to apply any more. Six, seven years is kind of, in Jersey City, and Jersey City is again, not at all atypical.

Thank you.

[The statement follows:]

STATEMENT OF ROBERT J. RIGBY, JR., EXECUTIVE DIRECTOR, JERSEY CITY HOUSING AUTHORITY, ON BEHALF OF THE COUNCIL OF LARGE PUBLIC HOUSING AUTHORITIES

Good afternoon Senator Garn, Senator Lautenberg, other members of the Committee, committee staff and invited guests. My name is Robert Rigby and I am the Executive Director of the Jersey City Housing Authority. I am testifying today on behalf of the Council of Large Public Housing Authorities (CLPHA), an organization which includes 35 PHAs that together manage approximately 45% of the conventional federal public housing stock and receive over half of all public housing operating subsidies. I mention these numbers because the actions of your Committee have an especially concentrated impact upon our PHAs.

I'd like to say that our members breathed a collective sigh of relief when Senator Garn set foot on the ground again after his travels in space. The Senator, this committee and its staff have been strong and faithful supporters of the existing conventional public housing program in the past, and we thank you for that support.

Since my time is very limited this afternoon, because of the schedule of the Committee, let me make a few major points, and then I would be glad to respond at greater length to any questions which you may have.

First, Mr. Chairman, we all know that this is going to be a very tough budget year. Your Committee is going to have to wrestle with the package worked out by the Senate Budget Committee,as well as the "compromise" reportedly agreed to among the Senate Republican Leadership and the White House. CLPHA is very concerned that the funding for low-income housing survive this process and that we not fall victim to the illusion that further deep cuts in programs for the poor are necessary in order to reduce the deficit.

Over the past four years, the authorizations for the programs of the Banking, Housing and Urban Affairs Committee have already been slashed severely, from $60 billion in FY80 to only $22 billion in FY85. This $38 billion reduction in authorizations already represents a larger absolute decrease than for any other Committee in the Congress, and the proportional cut, -62%, is larger than for all the other Committees except one -- Small Business. We think that low-income housing programs have already done more than their fair share. In spite of this enormous cut in federal housing program authorizations, federal deficits have climbed spectacularly. The increased interest on the federal deficit alone has more than eaten up all the savings in outlays achieved by the cuts in housing programs. Further cuts in federally-assisted housing programs for FY86 are going to do virtually nothing to solve the serious deficit problem. At the same time, they can cause enormous harm and chaos within programs that currently serve millions of Americans.

A recent report prepared for the National League of Cities shows that America's middle- and upper-income homeowners will receive $41.4 billion this year in the form of federal tax deductions for mortgage interest, property taxes and other home ownership costs. Each year these middle-and-upper income housing subsidies get bigger and bigger. If the Administration and this Congress want to save money by cutting housing subsidies, then we suggest they have the political gumption to do so for those who can most afford it, and not for the very poor.

The need for low-income housing in this country has never been greater. A recent study by Citizens Housing and Planning Association in Boston has shown that for every three units of family public housing in the country, there are two-people households signed up on the waiting lists, and in many communities the turn-over rates are so low that it would take decades for families to work their way from the bottom to the top of the lists. In New York City, the Housing Authority estimates that it has about one third more families than it does units, as a result of doubling up and overcrowding which is practically impossible to prevent. The future looks even more bleak, and even Secretary Pierce has pointed out that the effect of many of the proposed tax reforms will be to reduce the supply of private market housing available to low- and moderate-income households.

We therefore urge the Congress to continue its strong support for the conventional public housing program. This program is a successful and cost-effective way of meeting low-income housing needs, as pointed out in the Report of the President's Commission on Housing in 1982, from which I would like to quote the following:

> "Average public housing costs are no greater than the cost to house the same households in standard housing in the private rental market in the Section 8 Existing Housing Program. Average monthly Federal outlays (debt service plus operating subsidy costs) for public housing in 1981 were approximately equivalent to the direct Federal subsidy that would have been required for public housing tenants had they been in the Section 8 Existing Housing program."

The report points out that for 1981 the average monthly operating subsidy in public housing was $68 per unit, and debt service $99 per unit, for a total of $167 per unit per month. Although these costs have undoubtedly increased since then due to inflation, public housing remains one of the nation's most effective programs from the point of view of costs, and thanks to the modernization program (CIAP) approved by this Committee, is once again being restored to decent, safe and sanitary condition.

The remainder of my remarks this afternoon are going to be presented in the following order: public housing operating subsidies; modernization; development; rental assistance; and public housing debt.

Operating subsidies. Mr. Chairman, we are sometimes asked why we go to the trouble of making our own estimates of operating subsidy needs, since HUD does these calculations annually, too. I think it would be wise to remember that four years ago when the oil price shocks of 1979 were rolling through the economy, operating subsidy needs increased by about $250 million over HUD estimates in a single year! Yet that was the year that HUD withdrew the request for a supplemental appropriation of $100 million that had been submitted by the previous Administration!

If HUD submitted a detailed justification statement each year with its operating subsidy request, it would be easier I'm sure for both your staff and for the PHAs to analyze whether or not the figures are reasonable. But such numbers are not generally made available. So each year we have to go through our own process of trying to decide what assumptions the PHAs think make the most sense.

For FY86, CLPHA would like to request that your committee appropriate $1.3 billion for public housing operating subsidies, not including an additional $100 million we also feel is urgently needed to begin funding an appeals and costs-beyond-control process. In Appendix A to my testimony

CLPHA has indicated why it thinks the need is nearly $300 million higher than that estimated by HUD, in order to fund PFS at 100% (without the prpposed appeals and costs-beyond-control initiatives this year). Among these reasons are that we believe the utility inflation rate will be closer to a plus 3% than the negative 3% projected by HUD; that there will be slower inflation rate in tenant incomes than projected by HUD; and that a number of HUD guesses about ways to further reduce operating subsidies in FY86 won't be fulfilled, at least not to the degree estimated by HUD.

HUD of course would like us to believe that its estimates are always right "on the nose." In the Appendix, however, we have pointed out that HUD actually obligated about $51 million less than it apparently should have in FY84, without explanation. Of this amount, HUD simply said that about $21 million was due to "miscellaneous offsets." And the balance was supposed to be the result of the I.G.'s report. Back-up HUD documentation noted that if these reductions weren't in fact achieved in FY84, FY84, they would result in an increase in operating subsidy need for FY85. Yet there's never been any final report from the Department on what came of all this. An under-obligation of $21 million due to "miscellaneous offsets," without explanation, is a lot of money to have simply disappeared. We would like to ask for a report on what these offsets were.

A year ago, HUD requested $1.123 billion in operating subsidies for FY85. CLPHA's estimate of FY85 needs in contrast is $1.342 billion. When HUD submitted its FY86 budget request, just a few months ago, it had already revised its estimate of FY85 obligations to at least $1.241 billion, $118 million more than it requested for FY85. This is over half-way toward CLPHA's higher estimate, and we believe that the gap will be narrowed even further in the future months.

It does seem, therefore, that our figures are usually at least as close to the mark as HUD's. We would be very happy to work with the Committee staff to develop questions to HUD that would help to clarify HUD's assumptions and projections further.

My last comment on operating subsidies, Mr. Chairman, is essentially the same point that we make every year. If there is a cut of $300 million below the real PFS needs, the only place this cut can be made is in the PHA Allowable Expense Level (AEL), since utilities must be paid. The AEL for FY86 is estimated to be about $1.9 billion nation-wide, so there would be about a 16% cut in PHA operating expenses in a single year. The only place where cuts of this magnitude can be made is the PHAs' management and maintenance staffs. In turn, this increases the problems that must be paid for in future years. Congress is currently considering a possible freeze in many domestic programs in FY86. HUD's proposals, however, would not freeze PHA operating expenses but drastically reduce them.

CLPHA's request for $1.3 billion in operating subsidies for FY86 represents about the same amount that we believe ought to be obligated in FY85. This "no growth" figure seems to be a more equitable way of handling public housing operating subsidies than by cutting them by 25% below what is actually needed.

Modernization. CLPHA supports the continuation of the CIAP (modernization) program at least at the funding level provided by the Congress during FY85.

Thanks to five years of CIAP funding supported by this Committee, the PHAs have now made great strides in addressing the long-deferred and ignored backlog of capital improvements needs in public housing. During this period the PHAs hired and trained qualified modernization staff and brought them up to speed; prepared modernization plans; and took substantial steps toward implementing these plans.

Now CLPHA, other public housing groups, HUD and the Congress are considering future directions for the modernization program once a substantial proportion of this backlog is eliminated. Let's don't falter now, however, just as the goal of eliminating this backlog is within reach.

The results of a nationwide study of public housing modernization needs, funded and supported by this Committee, will be available next year. CLPHA urges that the CIAP program be continued at FY85 funding levels until the results of this study become known and the Congress has provided an orderly transition process toward any possible future programs of providing capital improvements funding.

(A full statement of the position taken by CLPHA's policy/steering committee on the HUD-proposed "comprehensive grant" program is attached as Appendix B.)

CLPHA would also like to thank Phil Sampson for his outstanding leadership of the Research Advisory Group for this study. We think that the changes proposed by this Group and supported by Phil have greatly improved the design of this important research project; and we look forward to this Group's continuing to play an active role in the design of any future replacement reserve programs that may evolve out of CIAP.

Development. Very briefly, we do support the continuation of the public housing development program at a minimum level of 10,000 units for FY86. In many communities there is simply no supply of vacant units available for assistance within the limits of the Section 8 "existing" program. In any event, HUD is proposing no incremental growth in the Section 8 program or the much-advertised "housing voucher" program that was supposed to replace Section 8. We therefore urge you to allow this very limited growth in the conventional public housing program.

Section 8 "existing/mod.rehab." We support expansion of the Section 8 "existing" program, and oppose the freeze in Fair Market Rent levels proposed by HUD for FY86. PHAs already experience great difficulty in using Section 8 "existing" certificates to house recipients with the greatest needs, especially larger, low-income minority families. Freezing Fair Market Rent levels will only aggravate and increase these problems. We also recommend that instead of cutting PHA administrative fees for the Section 8 "existing" and "mod rehab" programs, the fee structure be revised so that PHA fees are greatly increased for PHAs that provide assistance to hard-to-house families in finding units, and to PHAs that are involved in "moderate rehabilitation" programs (especially for the front-end costs). These increases could be taken out of reductions in fees for the on-going, routine administration of Section 8 certificates that remain in the hands of the same recipients over time.

Public housing debt. Finally, Mr. Chairman, I would like to comment on two aspects of the changes that are being made or proposed in the way public housing development and modernization are financed.

In terms of the outstanding housing debt, Secretary Pierce has recently been presenting in his Congressional testimony a chart that contains a dramatic roller-coaster "S-curve" that is apparently intended to demonstrate a huge reduction in the cost of the federal government's "housing" debt. For the most part this curve only shows a reduction resulting from converting short-term public housing notes to general Treasury obligations. A recent report from CBO says that such "intra-governmental transfers of funds"....."would not represent real savings to the federal government."

Some observers might get the impression from these charts that Sec. Pierce is taking credit for ending the federal role in public housing finance. But this, it seems to us, is a decision for the Congress, not one to be achieved through HUD's "blue smoke and mirrors".

In terms of shifting from funding public housing development and modernization through tax-exempt bonds to direct grants, we think there would be no major total dollar difference over time. A recent House memorandum has stated: "...the differences show up in how the dollar amounts are scored for budget purposes. In the tax-exempt bond method, the budget authority is large and the annual outlays are small since the outlays would occur over 30 years. The capital grant approach shows a lower budget authority but much higher outlays for grant disbursements. Thus, the capital grant approach makes public housing more vulnerable to cuts since the outlays are so large."

Mr. Chairman, we believe that there may be a time when the conversion of the public housing programs from tax-exempt bond status to direct grants could make sense. Now doesn't seem to be the appropriate time to do this, however, in a year when all of the forces of the Congress are laboring with great difficulty to move in exactly the opposite direction -- that is, toward a decrease in the current annual outlay levels. We believe that this is an idea whose time has not yet come, and we urge this Committee, therefore, to support the continuation of tax-exempt financing for public housing.

Thank you for your kind attention.

Appendix A: Comparison of CLPHA and HUD Estimates of Operating Subsidy Needs for FY84, FY85 and FY86.

FY84. In January 1984 when HUD submitted its FY85 budget request, HUD estimated FY84 operating subsidy obligations at $1.227 billion. Included in this calculation was an estimate that HUD would recapture $37 million during FY84 on the basis of the I.G. report, without which the operating subsidy need would have been $1.264 billion.

HUD is currently reporting, however, that it obligated only $1.203 billion in FY84.

Even assuming that HUD succeeded in recapturing $10 million during FY84 on the basis of the IG report (and HUD has never released any figures showing how much was recaptured), there would still be an unexplained difference of $51 million ($1.254 billion less $1.203 billion). What happened to this money?

CLPHA believes that there is no reason to assume that obligations for FY84 should have been any less than $1.254 billion.

We would like to ask the Committee to obtain an explanation from HUD.

FY85. In January 1984 when HUD submitted its FY85 budget request, HUD estimated that FY85 operating subsidy needs would be $1.123 billion. HUD asked the Appropriations Committees to rescind, not carry over, all appropriations from prior years.

HUD's estimate, however, were based upon the following assumptions, among others:

a) a negative inflation rate in utility costs;
b) an additional reduction in operating subsidy needs based upon unspecified factors related to the I.G. report; and,
c) an additional reduction in operating subsidy needs based upon a proposed new vacancy policy (which has not yet been adopted).

As of January 1985, in contrast, CLPHA estimates that there is likely to be either a zero or slight positive inflation rate in overall utility costs (oil prices may be steady or slightly falling, but gas and electric continue to climb); that neither of items (b) or (c) will actually produce a reduction in operating subsidy needs during FY85; and there is a need in FY85 to compensate for the underobligation of funds by HUD during FY84.

CLPHA currently estimates, therefore, need for operating subsidy obligations in FY85 of approximately $1.342 billion.

It should be noted that in its FY86 budget request, HUD is now estimating (already) that its FY85 obligations will be $1.241 billion, which is $118 million more than it requested for FY85. HUD has therefore already moved over half the distance toward CLPHA's higher estimate, and we believe that the subsidy obligations for FY85, particularly if the Congress focuses the spotlight on what is actually happening, are bound to be even higher than HUD's current estimates for FY85.

FY86. HUD has estimated operating subsidy "needs" in FY86 at $1.011 billion. HUD's estimate is based on a number of highly questionable assumptions, such as the following:

- obligations for FY85 lower than there is any documented reason to expect;
- a 3% decline in utility rates in FY86, which seems highly unlikely even if oil prices are relatively stable;
- substantial increases in tenant incomes due to inflation;
- a freeze on PHA personnel and expense levels; and,
- a savings of $35 million in FY86 resulting from a new HUD policy concerning payments to vacant units.

CLPHA's estimate of operating subsidy needs for FY86, in contrast, is $1.297 billion (not including $100 million for appeals and costs beyond control), which is approximately the same as what we think ultimately should be obligated by HUD for FY85.

CLPHA's estimate has been based on the following assumptions which differ from HUD's, among others:

- no freeze on PHA staff and salaries;
- a savings of $10 million during FY86 resulting from a new HUD policy concerning payments to vacant units (with further savings to come in subsequent years);
- a 3% increase (rather than HUD's 3% decrease) in utility rates;
- a lower rate of increase in tenant incomes due to inflation; and
- a higher projected figure for FY85 obligations.

April 16, 1985

CLPHA POLICY POSITION PAPER

SUBJ: HUD PROPOSAL FOR A COMPREHENSIVE GRANT FOR FUNDING PUBLIC HOUSING OPERATING SUBSIDIES AND CAPITAL IMPROVEMENTS.

During the past month, HUD has released details of its proposal for funding public housing operating subsidies and capital improvements through a "comprehensive grant" program, beginning in FY87. HUD has expressed its intention to introduce this proposal as legislation in the Spring of 1985, with the hope that it will be passed by the Congress now for implementation beginning with PHA fiscal years starting January 1, 1987.

Based upon the materials that have been circulated by HUD to date, the CLPHA policy/steering committee has taken the following position concerning the "comprehensive grant" proposal.

1) CLPHA endorses the concept of a replacement reserve. However, HUD's current proposal, although it has considerable appeal at first glance, seriously distorts the proposals that the PHAs have made themselves in the past, and is even substantially different from the program proposal under consideration by HUD last Fall. The PHAs have proposed that there be a staged transition under which PHAs could elect to shift individual developments from the CIAP program to a replacement reserve approach on a case-by-case basis as their backlog of modernization needs was met. (Or immediately if there is no backlog of needs, for example because the developments are new, or have been well maintained, or have been recently modernized using CIAP.) The PHAs have proposed that this new option be offered to the PHAs as soon as the major part of the current modernization needs backlog has been addressed nationwide.

2) HUD should continue to fund the backlog of modernization needs through the CIAP program until such a new system, to be phased in gradually, has been designed and details have been made available to the PHAs and to the Congress.

3) CLPHA looks forward to the completion of the Abt study of modernization needs in public housing, and to the publication of the Final Report in the late Fall of 1986. It does not currently appear, however, that results of this study will be available in time to be used for program administration purposes during FY87, especially since any allocation formulas which HUD might seek to develop based upon the results of the study would have to go through notice-and-comment rulemaking under the Administrative Procedures Act (APA). Moreover, there is nothing in the Abt study design at present that will provide PHA-level estimates for either the backlog of needs or the accrual of future needs. Therefore, some other way must be found for determining how much funding each PHA would get than by the results of the current Abt study.

4) Even when the study has been completed, most of the capital improvements money to be appropriated by the Congress should continue to be allocated by HUD to fund the backlog of modernization needs identified in the Abt study until a reasonably high proportion of these needs have been met.

5) When this threshold has been reached, such additional capital improvements funds as are made available by the Congress should be distributed in the form of replacement reserves, at the same time that the remaining backlog is finally eliminated.

CLPHA members are also eager that the PHAs themselves should participate fully in the development of the details of the system over the coming months. Many PHAs have indicated a strong interest in moving toward a replacement reserve approach in the future, but they would like to see as much as possible of the proposal ultimately embodied in statute, to limit HUD's discretion to make arbitrary changes in the details of the program once it has been adopted.

STATEMENT OF JOHN GLENN, PRESIDENT, NATIONAL CHURCH RESIDENCES (OHIO), ON BEHALF OF AD HOC COALITION FOR HOUSING FOR THE ELDERLY

HOUSING PROGRAMS

Senator GARN. Our next witness is Mr. John Glenn for the Ad Hoc Coalition for Housing for the Elderly.

Mr. GLENN. I happen to be president of National Church Residences. We say NCR back in Ohio, and they say it is National Cash Register. This is a church-sponsored organization, nonprofit, headquartered in Columbus, Ohio. We are one of the leading sponsors of housing for the elderly under section 202. We at NCR have some 60 different facilities up and running or funded in the pipeline. We have about 5,000 units; somewhat near the Jersey Housing Authority.

Under our leadership, we have about 3 percent of the Nation's 202's. As you indicated, sir, I am testifying today on behalf of the Ad Hoc Coalition for Housing for the Elderly.

This is a group of about 30 different national organizations, which are dedicated to insuring the development of decent and affordable housing for the Nation's elderly. We, as members of the ad hoc coalition, strongly oppose the proposals in the President's fiscal year 1986 budget. It places a 2-year moratorium on new assisted housing, drastically cutting programs designed to preserve the financial and physical viability of existing public housing and to eliminate the Farmers Home Administration Rural Housing Program, as well as 202.

When we talk about need for elderly housing, I think we need to be aware that in spite of 25 years of Federal involvement in elderly housing, older persons continue to be among the most poorly housing segments of American society. Even HUD itself has indicated and determined that nearly one in five, 20 percent, of elderly households live in inadequate housing, either due to the substandard conditions of the housing itself or to rent payments in excess of 50 percent of the resident's income.

Nearly half of all the elderly persons in this country living on poverty income spend, again, nearly half of their income, a limited income, on housing. Even older Americans who are able to afford decent housing in the private market often cannot find units specifically constructed with the special design features and services to meet their needs and permit them to maintain the independent lifestyles which we think they are entitled to.

When we talk about need, the gentleman who just testified before me indicates a great need in public housing. Our organization was just employed as a managing agent for a public housing facility in Michigan. There are 6,600 inquiries for 150 units, which means that 6,400-plus are not going to be able to get in.

In California, we have a facility where there were 2,300 inquiries for 100 units. This shows the great need, in general, for senior housing.

Recent administration reports have portrayed the elderly as achieving income parity with the general population, but looking at some of those statistics in the aggregate, national figures understate the extent of poverty and need for lower income people. Three and a half million elderly households have annual incomes of less than $5,000. How they exist is beyond me.

I am sure nobody here could try and live on that kind of income. Only one out of seven receives some form of government support through housing assistance. The fastest growing subgroup of elderly people in the Nation are women, the very old, and persons living alone, groups which I think we need to recognize, coincidentally, are among those are the highest poverty rate.

For example, elderly black women living alone are more than four times as likely as the overall elderly population to fall below Federal poverty guidelines.

We are all aware of the demographics of the rapid growth rate among older Americans which illustrates the growing need for senior housing. The elderly population is expected to double in the next century and will come to represent one out of every five Americans by the year 2030.

Again, these national figures do not represent the true extent nor the true need for senior housing. The very old, those above 85 and older, a group requiring high levels of support, will increase threefold by the end of just this century, 15 years away. Driven by the aging baby boom generation, this very old population will triple by the year 2030, with the result that 5 percent of the American population will be 85 years or older. These are kind of dramatic statistics if you will look down the road a few years.

A University of Michigan study estimates that 235,000 new senior housing units need to be produced every year just to keep pace with this great, growing need, the demand for elderly housing.

The only major Federal program providing new housing units for lower income elderly are public housing, section 8, 202 under HUD. Yet here, they have reduced production to a negligible level, down from an average of nearly 100,000 units back in 1980, 1981, 1982, to about 11,000 or 12,000 units in 1985, a decrease of 87 percent. Now the administration, of all things, is proposing to end all new housing production under the proposed 2-year funding moratorium on HUD housing assistance.

The coalition disagrees with the massive change in policy represented by the administration's proposals, with almost half of public housing residents over 62, and nearly 100,000 elerly persons living in Farmers Home section 515 rental housing.

The coalition is obviously disturbed about the impact of the administration's proposals and that effect it would have on older Americans. We think reducing funding for public housing, operating subsidies, and modernization threatens to destroy the quality of the existing stock of public housing and certainly eliminating rural housing programs overlooks the unique housing needs of rural areas and assumes the availability of an existing stock of rental housing which really doesn't exist.

The coalition is particularly concerned with the steady decline in funding under the 202 program, which our organization has been involved in substantially. We view this as the cornerstone of the Federal housing policy for the elderly. Yet the section 202 program is being phased out slowly now. According to the administration, they would like to eliminate it.

This program, we need to keep in mind, has produced high quality, durable housing for the elderly and the handicapped in more than 1,800 facilities. It is certainly one of the Federal Government's most successful housing efforts. Only three of these facilities have ever defaulted on their mortgage obligations. There have been no taint in the 202 program as has been typical of some others, and few of them have had any financial and management difficulties that have been experienced by other Federal housing programs.

If there has been a weakness in the 202 program, certainly, it has been its limited ability to meet the growing demand of the elderly for affordable housing.

At the White House Conference on Aging in 1981, there was a recommendation for funding for 20,000 new 202 units per year for the remainder of this century. This was the minimum that the conference felt was necessary to help meet the needs of lower income elderly persons.

In 1985, HUD has indicated that approximately half that number, 11,000 units, will be available, and as I have said, the administration proposes that no additional funding under section 202 be provided in fiscal year 1986 or 1987. This would certainly decimate the program.

As a nation, we cannot ignore our responsibility and commitments to properly house the elderly in the name of short-term budget savings. Nor can we continue to force the elderly into inadequate housing, or worse yet, prematurely place them in more costly nursing facilities. Placing older persons prematurely in an institution provides a level of care which often far exceeds their needs and certainly is more costly in the end because it results in direct, immediate and unnecessary expenses for health assistance programs which many of them do not need.

The cost of continuing to ignore the elderly housing needs will ultimately be reflected elsewhere in the budget as problems are caused by inadequate housing spillover into other health and social programs.

The last thing I would say is that the coalition believes that we must face the realities of an aging population and continue our Nation's long-standing commitment to ensure decent and affordable housing for our seniors. A strong Federal presence is entirely justified and required in meeting the housing needs of older Americans, particularly the specialized needs of the physically impaired and the low income elderly that traditionally have not and will not be met by the private housing sector. In conclusion, the coalition urges the subcommittee to reject the broad moratorium proposed by the President.

We would implore you to fund all assisted housing programs at least at the current fiscal 1985 level, and in particular, we would request full funding for section 202 for 1986 and 1987.

The coalition pledges its support and assistance to congressional efforts to ensure quality housing for our Nation's elderly, the people that have made this great country what it is.

We thank you for the opportunity to be here to present our concerns, and as the President would say, God bless you in your efforts.

Senator LAUTENBERG [presiding]. Mr. Glenn, I am sorry that we were not here to hear your testimony. As you know, it is in the record. That is the essential part. We have been running around the Senate chamber trying to balance the budget, in my view, sometimes on the backs of those who can defend themselves least well, among them, the elderly. We just had a vote on social security overwhelmingly carried to restore the COLA's to the people who are so dependent on those funds——

Mr. GLENN. Great.

Senator LAUTENBERG [continuing]. Can continue to get them. It is only the second inning. It is only a 15-inning ball game we are looking at, I think. [Laughter.]

Mr. GLENN. More to come?

Senator LAUTENBERG. We welcome you here, and the case you make is perhaps made most eloquently by those whom you are representing this day and notwithstanding your articulate statement.

I just want to ask you one question, Mr. Glenn. You said full funding for the year. What is that level? Do you have that?

Mr. GLENN. It is currently 11,000 for 202's.

Senator LAUTENBERG. 11,000 units, and do you remember the equivalent or expected cost for that?

Mr. GLENN. Somewhere in the area of half a billion dollars.

Senator LAUTENBERG. $600 million, and you are recommending that the level be continued?

Mr. GLENN. Continued, because it has already been cut, as I pointed out before you got here, sir, 87 percent.

Senator LAUTENBERG. Not making the comparison so much to the qualitative equivalent in terms of the budget, but what do we need to take care of the needs of the people who are genuinely out of contact with or out of housing that is adequate, the elderly? What are the numbers of people who are looking for the kind of housing assistance that we can give them?

Mr. GLENN. Michigan University indicated that there needs to be 235,000 new elderly housing units produced annually. The last White House Conference indicated there ought to be 20,000 assisted living units annually, so we are down roughly to half of that currently.

Senator LAUTENBERG. I think as far as I am concerned that the case rests and we hope that the big jury in the sky will help us make these decisions.

We thank you.

Mr. GLENN. We will pray for you.

Senator LAUTENBERG. We thank you.

[The statement follows:]

STATEMENT OF JOHN R. GLENN, PRESIDENT, NATIONAL CHURCH RESIDENCES, ON BEHALF OF THE AD HOC COALITION FOR HOUSING FOR THE ELDERLY

Mr. Chairman, and members of the Subcommittee, I am John R. Glenn, President of National Church Residences, a church-sponsored nonprofit corporation based in Columbus, Ohio which is a leading sponsor of housing for the elderly under the Section 202 Elderly and Handicapped Housing Program. Today, I am testifying on behalf of the Ad Hoc Coalition for Housing for the Elderly, a group comprised of nearly thirty national organizations and dedicated to ensuring the development of decent and affordable housing for the nation's elderly.

The members of the Ad Hoc Coalition strongly oppose proposals in the President's fiscal year 1986 budget that place a two-year moratorium on new assisted housing, drastically cut programs designed to preserve the financial and physical viability of existing public housing, and eliminate the Farmers Home Administration (FmHA) rural housing programs.

THE NEED FOR ELDERLY HOUSING

Despite more than 25 years of federal involvement in elderly housing, older persons continue to be among the most poorly housed segments of American society. HUD itself has determined that nearly one in five elderly households live in inadequate housing due either to substandard conditions or rent payments in excess of 50 percent of income. Nearly half of all elderly persons living on poverty incomes spend at least 45 percent of their limited income on housing. Even older Americans able to afford decent housing in the private market often cannot find units specifically constructed with special design features and services to meet their needs and permit them to maintain independent lifestyles.

Although recent Administration reports have portrayed the elderly as achieving income parity with the general population, aggregate national figures understate the extent of poverty and need. Three and a half million elderly households have annual incomes of less than $5,000; but, only one out of seven receives some form of governmental housing assistance. The fastest growing subgroups of elderly persons are women, the very old, and persons living alone; groups which, coincidentally, are among those with the highest poverty rates. For example, elderly black women living alone are more than four times as likely as the overall elderly population to fall below federal poverty guidelines.

The rapid growth rate among older Americans also illustrates the growing need for elderly housing. The elderly population is expected to double early in the next century and will come to represent one out of every five Americans by the year 2030. Again, these national figures mask the true extent of need for elderly housing programs. The very old (those 85 years and older), a group requiring high levels of support, will increase threefold by the end of this century. Driven by the aging of the "baby boom" generation, this very old population will again triple by 2030, with the result that five percent of the American population will be 85 years or older.

A University of Michigan study estimates that 235,000 new elderly housing units need to be produced annually just to keep pace with the growing demand for elderly housing. The only major federal programs providing new housing units for lower income elderly -- public housing, Section 8 and Section 202 under the Department of Housing and Urban Development (HUD) -- have reduced production to a negligible level: down from an average of 84,000 units per year between 1980-82 to roughly 11,000 units in 1985. The Administration is now proposing to end all new housing production under a two-year funding moratorium on HUD housing assistance.

FY '86 FUNDING FOR ELDERLY ASSISTED HOUSING

The Coalition disagrees with the massive change in policy represented by the Administration's proposals. With almost half of public housing residents over age 62, and nearly 100,000 elderly persons living in FmHA Section 515 rental housing, the Coalition is disturbed about the impact the Administration's proposals would have on older Americans. Reduced funding for public housing operating subsidies and modernization threatens to destroy the quality of the existing stock of public housing units. Eliminating rural housing programs overlooks the unique housing needs of rural areas which cannot be met by programs that are designed for urban areas and assume the availability of an existing stock of rental housing.

The Coalition is particularly concerned with the steady decline in funding for the Section 202 program, which it views as the cornerstone of federal housing policy for the elderly. The Section 202 program has produced high quality, durable housing for the elderly and handicapped in more than 1,800 facilities and is one of the federal government's most successful housing efforts. Few, if any, of these facilities have defaulted on their mortgage obligations, and few have had the financial and management difficulties experienced by other federal housing programs.

If the Section 202 program has any weakness, it has been its limited ability to meet the growing demand of the elderly for affordable housing. In 1981, the White House Conference on Aging recommended funding for 20,000 new Section 202 units per year for the remainder of this century as the minimum necessary to help meet the needs of lower income elderly persons. In 1985, however, HUD has indicated that less than 11,000 new units will be available. The Administration has proposed that no additional Section 202 units be provided in either fiscal years 1986 or 1987.

As a nation, we cannot ignore our responsibility and commitment to properly housing the elderly in the name of short-term budget savings. Nor can we continue to force the elderly poor into inadequate housing or prematurely place them in more costly nursing facilities. Placing older persons prematurely in an institution, by definition, provides a level of care which exceeds actual requirements and results in direct, immediate and unnecessary expenses for health assistance programs. The cost of continuing to ignore elderly housing needs will be ultimately reflected elsewhere in the budget as problems exacerbated by inadequate housing spill over into other health and social programs.

The Ad Hoc Coalition, instead, believes we must face the realities of an aging American population and continue our nation's long-standing commitment to ensuring decent and affordable housing for our elderly. A strong federal presence is entirely justified and required in meeting the housing needs of older Americans, particularly the specialized needs of the physically impaired and low-income elderly that traditionally have not been met by the private housing market.

In conclusion, the Ad Hoc Coalition urges the Subcommittee to reject the broad moratorium proposed by the President and to fund all assisted housing programs at least at fiscal year 1985 levels. In particular, we request full funding for Section 202 housing in fiscal years 1986 and 1987.

The Coalition pledges its support and assistance to Congressional efforts to ensure quality housing for our nation's elderly.

SUBCOMMITTEE RECESS

Senator LAUTENBERG. The subcommittee is recessed until tomorrow at 10 o'clock in the same room. We are going to hear the rest of the testimony from witnesses concerning the various agencies under our jurisdiction, and we thank you all for your diligent attendance.

[Whereupon, at 4:58 p.m. Wednesday, May 1, the subcommittee was recessed to reconvene at 10 a.m. Thursday, May 2.]

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT-INDEPENDENT AGENCIES APPROPRIATIONS FOR FISCAL YEAR 1986

THURSDAY, MAY 2, 1985

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 9:58 a.m. in room SD–124, Dirksen Senate Office Building, Hon. Jake Garn (chairman) presiding.

Present: Senators Garn, D'Amato, Abdnor, Johnston, Leahy, and Lautenberg.

NONDEPARTMENTAL WITNESSES

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

STATEMENT OF CHARLES WALKER, DEAN, HEALTH AND MEDICINE COUNSEL OF WASHINGTON

Senator GARN. The subcommittee will come to order.

Dr. Walker, if you would like to start, there is no reason why the Senate cannot start 2 minutes early for a change.

Dr. Walker, we are happy to have you. Of course, we will put your entire statement in the record. We are happy to hear your testimony now.

Dr. WALKER. Chairman Garn and members of the subcommittee, I am Charles A. Walker, dean of the College of Pharmacy and Pharmaceutical Sciences at the Florida Agricultural and Mechanical University in Tallahassee, Fla. I appreciate the opportunity to represent the colleagues of my university and share with you and the committee some of our unique programmatic, research, and professional activities in the college and university, many of which are of national significance. I would like to share further concerns that threaten to curtail this activity, if a proper support base is not realized in the near future.

First, allow me to provide some background information relative to our health professions school and its importance nationally in terms of supplying health manpower personnel who are experts relative to medication and drug-related problems and diseases.

The pharmacy program at Florida A&M is one of four such programs at historically black colleges and universities. For the past 10 years, Florida A&M University has been the leading producer of black minority B.S. pharmacy practitioners. We have produced some 16 percent of the total out of some 72 schools and colleges of pharmacy in the Nation.

Our college has also produced some 60 percent of all postbaccalaureate doctor of pharmacy black minority graduates. Most recently, we became the only college of pharmacy at the HBCU to initiate the Ph.D. degree in pharmaceutical sciences. Since 1975, less than 15 black males and, to our knowledge, no black females have earned the Ph.D. in this very important basic science, while better than 2,000 have been awarded to majority and other minority candidates.

Because of commitment, tradition, and concern, the college of pharmacy at Florida A&M will positively impact this situation in the near future.

In addition to the structured programmatic contributions, our college has emphasized, for the past 10 years, strong research and professional activity of national and international significance. For the past 5 years, the research program has involved more than 10 percent of our 300 undergraduate students and all of our faculty and postbaccalaureate students.

The strong research activity has resulted in our college being designated a center of excellence by the board of regents in the State of Florida. Our college is specifically noted for its accomplishments in the area of chronophysiology and chronopharmacology. While this work is supported by the National Aeronautics and Space Administration and the National Institutes of Health, its significance is extremely important in terms of space travel, space labs, and even transmeridian air flights while on Earth. The possibility of developing chronobiotics and compounds that can synchronize and desynchronize human subjects is being studied and advanced in our laboratories. The importance of this research range from an extreme interest by our national defense to similar concerns relative to athletic performance when people travel across new time zones.

The college has established excellent research support from such agencies as NIH, NASA, Office of Naval Research, AID, and DOE. Support for research generated by the faculty is committed for better than $4 million for the next 4 years.

The college is also involved in some special training programs. One such program is the summer Space Life Sciences Training Program, between the college of pharmacy at Florida A&M and J.F. Kennedy Space Center. Each summer from 1985 through 1992, Florida A&M will contract 30 college students nationwide to conduct research in the life sciences at NASA. This is a hands-on, 6-week program designed to increase the pool of future aerospace scientists. This is the only such program in the Nation.

Our college is one of the leading research institutions, but the quality and quantity of research and research training is seriously threatened due to the lack of adequate facilities.

Because of the uniqueness and national importance of our programs and the fact that support has not been provided for facilities, we are asking the committee to assist our college by funding in the amount of $5 million so we can continue to maintain the quality of research and other activities we have initiated. This research could serve as pilot programs for the remainder of the Nation.

I appreciate the opportunity to appear before this committee, and I thank you for allowing me to explain our programs and our concerns relative to that continued assistance.

Senator GARN. Thanks very much, Dean. I do have some expertise in space motion sickness.

Dr. WALKER. I know.

Senator GARN. I will tell you from first-hand experience, it is very different from earthbound motion sickness of any kind, either sea sickness or aircraft sickness. That is one of the things that makes it so difficult to solve, and there is no predictability as to who will get sick and who will not.

In normal situations you go through—the spinning chairs, and believe me, I was put through all of them. Zero G aircraft; every type of test they can devise on the ground doesn't mean anything once you get in space. None of the things I described before bother me at all. I have been a pilot for more than 30 years. I have not been air sick since I was a little kid, but I got sick in space.

One of our crew members who doesn't like to fly and who cannot take T-38 acrobatic flights or turbulence very well felt just fine during the entire space flight. So that is one of the things that makes it very difficult to solve because there is no correlation with the earthbound motion sickness.

While some of the researchers at NASA think there is, believe me, they can sit in their labs and talk about it and I know. I know how I felt, and I know how the crew felt, and exactly there simply was no correlation at all.

It is remarkable, though, how the body does adapt. When you are first in space, the inner ear, the otoliths and semicircular canals, is sending signals to the brain and the brain does not know how to interpret them. Virtually, without exception, the longest that space motion sickness has lasted is 2 days. Whether or not you take medications, such as Scopex with Dexedrine in it so you are not sleepy, that is pretty standard—if you take medication, you feel better in 2 days and if you do not take medication, you feel better in 2 days. So it is a difficult problem to solve, but one that needs to be solved.

When we get the space station up there, the shuttle is going up and take people up—workmen and scientists, whatever. If most everybody doesn't feel well for a couple of days and it is only a 2-day flight up and back. It certainly would impinge on the success of the mission or certainly the safety of the mission as well.

So it is an area that a great deal more work needs to be done in. I hope the data I brought back and Dave Horton's tape recorder, the

EEG's, and lots of other tests, will provide additional data that might be helpful in solving that problem. It is a very difficult one. Obviously, the body is simply not accustomed to being at zero G. We have lived in 1G from the moment we were born.

Again, it does amaze me how adaptable the body is to that change.

You are requesting $5 million. Can you describe how those $5 million would be utilized?

Dr. Walker. As I indicated, we are involved in some very interesting and unique research that is relative to space, as well as other areas of the Nation. In addition to chronopharmacology, we are attempting to synthesize some new antimotion sickness compounds. For the man years I can remember, we have always used the Dexedrine and Sopolomine-type compounds. No one has ventured to develop new compounds, and that is one thing we are working on.

We would use the funds to finance a modern, state-of-the-art research facility. We have accumulated a tremendous amount of research support based on very aggressive and forward-thinking faculty, but we have never been able to get facilities for this work, and that is our problem.

As you know, facilities have been very difficult to acquire over the past few years. We think the research is of extreme importance.

Senator Garn. It is interesting to note that you are working on new compounds. One of the things I did, which I am awaiting the results of, was doing some drug assimilation tests because there is one theory that possibly the reason motion sickness drugs such as Sopolimine doesn't work is because it never reaches the blood stream or if it does, it is very slow. Bowel utility is definitely slowed down. There is a direct correlation between what was happening to my bowels and how I felt. They simply ceased to function after a while. They said, hey, we don't like this environment; we are going to stop, so just using some Tylenol—I did a lot of preflight data on how long it took a compound just as simple as Tylenol to get to my blood stream. Although they don't want intrusive-type tests in space—taking blood samples for obvious reasons, infection or simply the blood floating all over the cabin if you happen to lose it—so they have done some tests with assimilation of saliva, which correlates directly with the time it takes to get to the blood stream.

So part of my responsibilities, which you cannot imagine how dry this makes your mouth particularly, but to suck on about 10 cotton balls a day and bring back the cotton soaked with saliva balls after having taken Tylenol.

And so I am interested in how that Tylenol assimilation compared to preflight. Did it reach my blood stream and, if so, was it slowed down? We have to know the answer to that regardless of the compounds you develop. If they are not reaching the blood stream, obviously they are not going to be——

Dr. Walker [interposing]. That is quite true. Of course, one of the main responsibilities of our pharmacists is the whole thing of pharmacokinetics and drug monitoring, half-life of drugs in a physiological system. We know there is a difference in the metabolism and assimilation of drugs at zero gravity as opposed to here on Earth. That has not been really studied very well, and that is another area that our people are working in, which is very significant, not just the Sopolomine or the Tylenol but basic compounds that a person might need to take while at a space lab—medication.

Senator GARN. I want to assure you you will be interested in the results. I did two of those while I was in space. It will be interesting to see how it was assimilated. My understanding is it is the first time it has been done in space.

Dr. WALKER. Yes.

Senator GARN. I did not ever expect to know so much about throwing up. But right now, I am one of the experts in the whole country. [Laughter.]

Thank you very much. We appreciate you being here.

[The statement follows:]

Statement of Dr. Charles A. Walker, Dean, College of Pharmacy and Pharmaceutical Sciences, Florida Agricultural and Mechanical University

TO CHAIRMAN GARN AND MEMBERS OF THE SUB-COMMITTEE. I AM CHARLES A. WALKER, DEAN OF THE COLLEGE OF PHARMACY AND PHARMACEUTICAL SCIENCES AT THE FLORIDA AGRICULTURAL AND MECHANICAL UNIVERSITY IN TALLAHASSEE, FLORIDA. I APPRECIATE THE OPPORTUNITY TO REPRESENT THE COLLEAGUES OF MY UNIVERSITY AND SHARE WITH YOU AND THE COMMITTEE SOME OF OUR UNIQUE PROGRAMMATIC, RESEARCH AND PROFESSIONAL ACTIVITIES IN THE COLLEGE AND UNIVERSITY, MANY OF WHICH ARE OF NATIONAL SIGNIFICANCE. I WOULD LIKE TO SHARE FURTHER CONCERNS THAT THREATEN TO CURTAIL THIS ACTIVITY, IF A PROPER SUPPORT BASE IS NOT REALIZED IN THE NEAR FUTURE.

FIRST, ALLOW ME TO PROVIDE SOME BACKGROUND INFORMATION RELATIVE TO OUR HEALTH PROFESSIONS SCHOOL AND ITS IMPORTANCE NATIONALLY IN TERMS OF SUPPLYING HEALTH MANPOWER PERSONNEL WHO ARE EXPERTS RELATIVE TO MEDICATION AND DRUG RELATED PROBLEMS AND DISEASES. THE PHARMACY PROGRAM AT FLORIDA A AND M UNIVERSITY IS ONE OF FOUR (4) SUCH PROGRAMS AT HISTORICALLY BLACK COLLEGES AND UNIVERSITIES (HBCU's). FOR THE PAST TEN YEARS FLORIDA A AND M UNIVERSITY (FAMU) HAS BEEN THE LEADING PRODUCER OF BLACK MINORITY B.S. PHARMACY PRACTITIONERS. WE HAVE PRODUCED SOME 16% OF THE TOTAL OUT OF SOME 72 SCHOOLS AND COLLEGES OF PHARMACY IN THE NATION. OUR COLLEGE HAS PRODUCED SOME 60% OF ALL POST-BACCALAUREATE DOCTOR OF PHARMACY BLACK MINORITY GRADUATES. MOST RECENTLY, WE BECAME THE ONLY COLLEGE OF PHARMACY AT THE HBCU's TO INITIATE THE PH.D. DEGREE IN THE PHARMACEUTICAL SCIENCES. SINCE 1975 LESS THAN 15 BLACK MALES AND NO BLACK FEMALES HAVE EARNED THE PH.D. IN THIS VERY IMPORTANT BASIC SCIENCE, WHILE BETTER THAN TWO THOUSAND HAVE BEEN AWARDED TO MAJORITY AND OTHER MINORITY CANDIDATES. BECAUSE OF COMMITMENT, TRADITION AND CONCERN, THE COLLEGE OF PHARMACY AT (FAMU) WILL POSITIVELY IMPACT THIS SITUATION IN THE NEAR FUTURE. IN ADDITION TO THE STRUCTURED PROGRAMMATIC CONTRIBUTIONS, OUR COLLEGE HAS EMPHASIZED - FOR THE PAST TEN YEARS - STRONG RESEARCH AND PROFESSIONAL ACTIVITY OF NATIONAL AND INTERNATIONAL SIGNIFICANCE. FOR THE PAST FIVE (5) YEARS THE RESEARCH PROGRAM HAS INVOLVED MORE THAN 10% OF OUR 300 UNDERGRADUATE STUDENTS AND ALL OF OUR FACULTY AND POST-BACCALAUREATE

STUDENTS. THE STRONG RESEARCH ACTIVITY HAS RESULTED IN OUR COLLEGE BEING DESIGNATED A "CENTER OF EXCELLENCE" BY THE BOARD OF REGENTS OF THE STATE UNIVERSITY SYSTEM. OUR COLLEGE IS SPECIFICALLY NOTED FOR ITS ACCOMPLISHMENTS IN THE AREA OF CHRONOPHYSIOLOGY AND CHRONOPHARMACOLOGY. WHILE THIS WORK IS SUPPORTED BY THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA) AND THE NATIONAL INSTITUTES OF HEALTH (NIH), ITS SIGNIFICANCE IS EXTREMELY IMPORTANT IN TERMS OF SPACE TRAVEL, SPACE LABS, AND EVEN TRANSMERIDIAN AIR FLIGHTS WHILE ON EARTH. THE POSSIBILITY OF DEVELOPING CHRONOBIOTICS AND COMPOUNDS THAT CAN SYNCHRONIZE AND DESYNCHRONIZE HUMAN SUBJECTS IS BEING STUDIED AND ADVANCED IN OUR LABORATORIES. THE IMPORTANCE OF THIS RESEARCH RANGE FROM AN EXTREME INTEREST BY OUR NATIONAL DEFENSE TO SIMILAR CONCERNS RELATIVE TO ATHLETIC PERFORMANCE WHEN PEOPLE TRAVEL ACROSS NEW TIME ZONES. THE JUNE 1, 1983 CHRONICLE OF HIGHER EDUCATION WROTE THAT, "ACCORDING TO DR. WALKER AT THE (FAMU) COLLEGE OF PHARMACY, THEIR RESEARCHERS ARE WORKING TO DEVELOP A NEW DRUG THAT WILL MAKE IT POSSIBLE FOR INDIVIDUALS TO SHIFT THEIR CIRCADIAN CYCLE FROM ONE TIME ZONE TO ANOTHER, WITHOUT HARM."

THIS RESEARCH HAS TREMENDOUS IMPORTANCE IN MEDICINE, ESPECIALLY IN TERMS OF THE PROPER TREATING OF PATIENTS WITH DRUGS FOR ILLNESSES WITH MINIMAL TOXIC SIDE EFFECTS. THE MAY 27, 1978 BRITISH MEDICAL JOURNAL, IN AN EDITORIAL RELATIVE TO A RECENT INTERNATIONAL SYMPOSIUM - HOSTED BY THE (FAMU) COLLEGE OF PHARMACY WROTE, "THE FLORIDA A&M CONFERENCE COVERED MANY TOPICS FROM ENDOCRINOLOGY AND PARASITOLOGY TO NEUROPHARMACOLOGY. CHRONOBIOLOGY IS A NEW SCIENCE AND CHRONOTHERAPEUTICS MAY WELL BE A NEW SKILL FOR CLINICIANS TO LEARN AS THE EVIDENCE ACCUMULATES OF THE IMPORTANCE OF THE TIMING OF TREATMENT FOR EITHER THE DAY OR THE HOUR."

THE COLLEGE OF PHARMACY HAS MADE NEW AND IMPORTANT DISCOVERIES IN HEALTH CARE THAT HAVE LED TO THE PATENTING OF NEW DRUGS AND THE DEVELOPMENT OF NEW TECHNIQUES FOR THE BETTER TREATMENT OF PATIENTS. MOST RECENTLY, THROUGH OUR SOUTH FLORIDA AFFILIATION, THE CLINICAL ASPECT OF OUR PROGRAM IS SERVING AS A NATIONAL MODEL FOR ADVISING THE ELDERLY AND OTHER MEDICALLY UNDER SERVED AND NON-COMPLIANCE PATIENTS ABOUT THEIR PRESCRIPTION DRUGS. WE HAVE FACULTY PRESENTLY

WORKING ON A UNIQUE PROJECT INVOLVING THE MICROBIAL DEGRADATION OF THE FUEL HYDRAZINE. WE HAVE A GROUP OF FACULTY DEEPLY INVOLVED IN MOTION SICKNESS RESEARCH. WE ARE PRESENTLY THE ONLY ACADEMIC UNIT, TO OUR KNOWLEDGE, PROPOSING TO SYNTHESIZE AND TEST NEW DRUGS FOR MOTION SICKNESS. SYNDICATED COLUMNIST CARL ROWAN WROTE IN AUGUST OF 1983 THAT: "SCIENTISTS IN (FAMU's) COLLEGE OF PHARMACY ARE WORKING ON THE PROBLEM OF TRYING TO DEVELOP MEDICINES TO COMBAT SPACE SICKNESS."

THE COLLEGE HAS ESTABLISHED EXCELLENT RESEARCH SUPPORT FROM SUCH AGENCIES AS NIH, NASA, ONR, AID, AND DOE. SUPPORT FOR RESEARCH GENERATED BY THE FACULTY IS COMMITTED FOR BETTER THAN FOUR (4) MILLION DOLLARS FOR THE NEXT FOUR (4) YEARS. THE COLLEGE IS ALSO INVOLVED IN SOME SPECIAL TRAINING PROGRAMS. ONE SUCH PROGRAM IS THE SUMMER SPACE LIFE SCIENCES TRAINING PROGRAM, BETWEEN THE COLLEGE OF PHARMACY AT (FAMU) AND THE J. F. KENNEDY SPACE CENTER. EACH SUMMER, FROM 1985 THROUGH 1992, (FAMU) WILL CONTRACT 30 COLLEGE STUDENTS NATIONWIDE TO CONDUCT RESEARCH IN THE LIFE SCIENCES AT NASA. THIS IS A HANDS-ON, SIX WEEKS PROGRAM DESIGNED TO INCREASE THE POOL OF FUTURE AEROSPACE SCIENTISTS. THIS IS THE ONLY SUCH PROGRAM IN THE NATION.

OUR COLLEGE IS ONE OF THE LEADING RESEARCH INSTITUTIONS, BUT THE QUALITY AND QUANTITY OF RESEARCH AND RESEARCH TRAINING IS SERIOUSLY THREATENED DUE TO THE LACK OF ADEQUATE FACILITIES.

BECAUSE OF THE UNIQUENESS AND NATIONAL IMPORTANCE OF OUR PROGRAMS AND THE FACT THAT SUPPORT HAS NOT BEEN PROVIDED FOR FACILITIES, WE ARE ASKING THE COMMITTEE TO ASSIST OUR COLLEGE BY FUNDING IN THE AMOUNT OF FIVE(5) MILLION DOLLARS SO WE CAN CONTINUE TO MAINTAIN THE QUALITY OF RESEARCH AND OTHER ACTIVITIES WE HAVE INITIATED. THIS RESEARCH COULD SERVE AS PILOT PROGRAMS FOR THE REMAINDER OF THE NATION.

I APPRECIATE THE OPPORTUNITY TO APPEAR BEFORE THE COMMITTEE AND I THANK YOU FOR ALLOWING ME TO EXPLAIN OUR PROGRAMS AND OUR CONCERNS RELATIVE TO THEIR CONTINUED EXISTENCE.

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

STATEMENT OF BROWN NICHOLSON, JR., VICE PRESIDENT—LEGISLATION, PUBLIC HOUSING AUTHORITIES DIRECTORS ASSOCIATION

Senator GARN. Next, if I can invite to the witness table Mr. Brown Nicholson, Jr., vice president—legislation, Public Housing Authorities Directors Association.

Is Mr. Nicholson here?

Good morning. Please proceed.

Mr. NICHOLSON. As you stated, I am Brown Nicholson, Jr., vice president—legislation, Public Housing Authorities Directors Association. With me at the table this morning is Mr. Layton, president of our association. Mr. Layton is from Albany, NY.

We represent about 800 local directors like me and Mr. Layton. This morning we want to talk about some of our concerns in terms of appropriations. We have submitted written testimony to the committee in advance, and we appreciate this being entered in the record as well as these remarks this morning.

We appreciate the opportunity to appear. It is nice to be the first on the housing side for the morning. At least we do not have to worry about contradicting our colleagues. That will be their problem for a change.

The group against us is quite a group of opposition—no less than OMB and its directors—and, consequently, our concerns in the appropriations area are many.

I would like to mention some of those sort of in the order in which we think there is a priority, if I might. First and foremost, I suppose, is the funding that is available for the operating subsidy, the so-called PHS. We feel the funding level ought to be $1.24 billion—I have been stumbling over that number all morning—which is the HUD estimate of the needs that the industry has for the next year. That is not the estimate they put in the budget, but that is the estimate they published prior to putting it in the budget.

We feel this money should be delivered by the existing PHS system with perhaps some modifications to include more rewards for effective management and a replacement reserve. The details of these recommendations are contained in our written testimony.

We would like to see other steps taken to reduce the need for operating subsidies to include minimum and maximum rents based on fair market rent and section 8 program. The opportunity to return our housing to families with 50 to 80 percent of medium income and to consider a reduction for rent or the difference between gross and net income, a 10-percent reduction for a working family. These changes would, as I say, reduce operating expenses and, therefore, cut our reliance on operating subsidies. It would strengthen local management, reduce our operating subsidy needs, and encourage our tenants to be self-sustaining.

The authorizing committee gave us a rent amendment recently, and HUD has not published the final regulations under this action. We suggest to you that is also going to be quite expensive and require ultimately additional appropriations and is repulsive, as a matter of fact, to 85 to 95 percent of our tenants. We would like to see that repealed at some point, if for no other reason than to reduce appropriations.

The No. 2 interest our constituency has is in the area of funding for modernization or the Comprehensive Improvement Assistance Program. We feel the level of $1.725 billion is appropriate in order to continue the 1985 level of funding pending the outcome of the current modernization needs study that is underway at HUD.

We feel like the results from that study will clearly demonstrate what the needs are in terms of appropriations and other things in the modernization program, and we would like to see the current level of activity maintained until that study can be completed, results tabulated and plugged into the appropriations process.

Our third area of interest in terms of relative importance in a year apparently going to be tight apparently from the appropriations standpoint is in the production of new units. I say somewhat with a little tremble that our association feels that provisions of H.R. 1 are realistic. I doubt I will get a whole lot of approval on Capitol Hill on that subject, but we do feel that way, keeping in mind in H.R. 1, the $21 million budget is roughtly 50 percent of the budget HUD proposed recently.

In other words, we feel we have taken our cuts, at least enough for the time being, and there is room in the appropriations process to maintain some new units of public housing. We would like the 15,000 that are provided for in H.R. 1, but certainly no less than the 5,000 that is provided for in the current year.

Section 8 authorization last year was 37,500 units. We would like to see the committee recommend an appropriations sufficient to fund that many units again this year, and we would like to see the voucher demonstration continued.

We still feel like vouchers are an experimental program. We understand the first of the vouchers was issued last week in San Antonio. In my home town of Columbus, Ga., last week, we signed the annual contributions contract. We have been trying to get HUD to mail us a copy of it since last October. When we got it, we adopted it and the same day mailed it back. I believe we will issue some vouchers when HUD gets around to signing it.

Last year's level on vouchers, as I recall, was 38,500 vouchers, and I suggest to the committee that you consider that again.

There is a lot of interest on Capitol Hill and throughout Washington this year on the whole subject of disposition of units and distribution of units. A lot feel strongly this ought to be a local initiative, not a HUD mandate, and there certainly should be provision for a one-unit-for-unit replacement; all units disposed of should be replaced and the committee needs to appropriate sufficient funds for this if we are going to get into a disposition and distribution program.

There have been more sales to tenant groups failed than have succeeded. We certainly recommend the Congress proceed with all caution in enacting legislation that would provide for the sale of existing units to tenant groups. Unfortunately, every public housing agency cannot be as great as the national capital authority.

Another thing, the British example is pertinent to circumstances in America in our Public Housing Program. If the committee is interested in a detailed analysis of that, we would be happy to furnish it to you in a separate document.

One more point. HUD has cut the administrative need for existing 87 program by 10 percent. When we questioned the officials at HUD a few weeks ago about that—Mr. Layton and I were present during that meeting—no effort was made to connect these program needs or changes in program activity. The statement was simply made: You are being cut 10 percent to conform with the governmentwide initiative to reduce the deficit. We think that, at least, they could publish some comments, according to the Administrative Procedures Act, which they have not done and on making changes of this magnitude certainly the Public Housing Authority should be given an opportunity to comment on the impact of it.

Mr. Chairman, the Public Housing Association has prepared a strategies paper that is drying at the printers this morning, and will be distributed within the next few days. Copies of this will be furnished to staff of the committee and members of the committee very shortly, and we would appreciate your taking a look at it and considering the points made in that paper in connection with this year's appropriation.

We appreciate the opportunity to be with you this morning, and we will attempt to answer any questions, sir, you might have.

Senator GARN. Thank you very much. I have no questions for you this morning. Is there anything you would like to add?

Mr. LAYTON. I think we would like to add one thing. You recently received from the General Accounting Office the report on vacancies. I think it does point out some of the things we do have in HUD. Twenty-five housing authorities, according to this report, caused 46 percent of the vacancy problem, and yet HUD's solution is to put in regulations that will affect the 3,000 housing authorities.

There has to be some change in attitude by the Department if we are going to improve our management skills. Instead of when a problem is identified, writing a rule that affects everybody, increasing our paperwork and all our problems, they should have the skill and the administrative ability to go out and pinpoint those particular problems and solve them rather than setting out regulations and rules that everybody has to follow. It is an unfortunate situation.

A housing director that has, maybe, 250 to 300 units has to fill out the exact same forms, same procedures, read the same regulations as a housing authority with 20,000 units with a large staff. I think somebody has to finally convince HUD that they have to improve their management skills. Housing directors, I feel, in the last 3 or 4 years have substantially improved their skills. Most of the housing authorities are well managed. We need to recognize that and stop putting these additional burdens on that.

Senator GARN. When you solve that problem we will expand it governmentwide because you deal with it in housing. I used to be a mayor and I would wake up every morning and feel like I had to call region VIII for HUD, HEW, all the different agencies, to find out what I could do for the day. I was not really the mayor of Salt Lake City; I was the local manager. The feelings and frustrations with the same rules and regulations apply to every city regardless of size, regardless of differences in population and geography and all of that.

I used to refer to it as size 42 suit. How silly it was for the uniformed regulations to be imposed on 14,000 or 15,000 cities in this country because they found a problem in five or six. It is just as silly, I said, as if I would pass a law as mayor of Salt Lake City that every man in the city wears a size 42 suit. Some it would fit; some, obviously, way too big; and others couldn't get into it.

So I understand the problem. If you ever have any ideas on how we educate HUD and all the other governmental agencies to do what you just said, it is a wonderful suggestion, to look at the individual problems and solve them and not apply them to all the organizations, whether it is housing or anything else, we will elect you king, not just President. King of the country. So I will wait for your suggestions on how we do that because I spent 10 years beating HUD about the head and ears and haven't even bruised them yet. Thank you very much.

[The statement follows:]

STATEMENT OF BROWN NICHOLSON, JR., VICE PRESIDENT/LEGISLATION, PUBLIC HOUSING AUTHORITIES DIRECTORS ASSOCIATION

MR. CHAIRMAN, MEMBERS OF THE SUBCOMMITTEE, I AM BROWN NICHOLSON, VICE PRESIDENT FOR LEGISLATION OF THE PUBLIC HOUSING AUTHORITIES DIRECTORS ASSOCIATION (PHA/DA) AND EXECUTIVE DIRECTOR OF THE COLUMBUS, GA HOUSING AUTHORITY. FIRST AND FOREMOST, ON BEHALF OF PHA/DA I WANT TO THANK YOU FOR THIS OPORTUNITY TO TESTIFY BEFORE YOU AND TO APPLAUD THIS SUBCOMMITTEE ON ITS STRONG AND LONG RECORD OF CONCERN AND DEDICATION TO THE HOUSING NEEDS OF AMERICA'S LOW INCOME FAMILIES.

PHA/DA REPRESENTS THE EXECUTIVE DIRECTORS OF 800 PUBLIC HOUSING AGENCIES THROUGHOUT THE UNITED STATES AND, LADIES AND GENTLEMEN OF THE SUBCOMMITTEE, WE NEED YOUR HELP ONCE AGAIN. HUD'S PROPOSED BUDGET FOR FY 1986 FAILS TOTALLY TO ADDRESS THE EXISTING HOUSING CRISIS IN THIS COUNTRY. ONE FAILS TO SEE THE LOGIC OF HUD REFUSING TO FUND EITHER NEW DEVELOPMENT OR CAPITAL IMPROVEMENTS TO EXISTING STOCK WHILE PHA'S IN ALL REGIONS OF THE NATION NOW CARRY MULTI-YEAR TENANT WAITING LISTS. HUD'S BUDGET IS AT BEST SHORT SIGHTED, AT WORST, AN INDICATION THIS ADMINISTRATION INTENDS TO FULLY DIVEST THE FEDERAL GOVERNMENT OF ITS MORAL AND LEGAL OBLIGATION OF PROVIDING DECENT, SAFE AND SANITARY HOUSING FOR ALL AMERICANS.

OUR IMMEDIATE OBLIGATION IS TO ENSURE THE LIVEABILITY AND LONG TERM VIABILITY OF OUR EXISTING STOCK OF LOW INCOME HOUSING. TO THAT END WE URGE YOUR REJECTION OF HUD'S PROPOSED FUNDING LEVELS FOR PUBLIC HOUSING OPERATING SUBSIDIES AND THE COMPREHENSIVE IMPROVEMENT ASSISTANCE PROGRAM (CIAP).

HUD PROPOSES TO FUND OPERATING SUBSIDIES IN FY 1986 AT $1.01 BILLION. HUD'S ESTIMATE FOR PRESENT YEAR OPERATING SUBSIDY COSTS IS $1.24 BILLION; $1.20 WAS EXPENDED IN FY 1984. HUD BUTTRESSES ITS LOW FY VACANCIES PENALTY REGULATION AND A ONE YEAR FREEZE ON PHA OPERATING EXPENSES. HUD'S 1984 PROPOSED VACANCIES RULE WAS RETRACTED AFTER CONSIDERABLE INDUSTRY PRESSURE. AS IT TURNS OUT, HUD HAD FAILED TO TAKE INTO CONSIDERATION BOTH THE COSTS OF

MAINTAINING TEMPORARILY VACANT UNITS AND THE LEGAL OBSTACLES TO PROPERTY SALES AND DISPOSITION. THE PROPOSAL VIRTUALLY FORCED PHAS TO MODERNIZE OR SELL. INCIDENTALLY, NO NEW MODERNIZATION FUNDS WERE TO BE PROVIDED. IN FACT, HUD NOW PROPOSES TO FREEZE MODERNIZATION FUNDING. PHA/DA IN REVIEWING THIS HISTORY, MUST VIEW WITH SUSPICION HUD'S FINANCIAL PREMISE FOR THIS FUNDING CUT. REGARDING THE FREEZE, WHAT ARE PHAS TO DO WHEN BASIC MAINTENANCE ITEMS INCREASE IN PRICE OR WITH MULTI-YEAR COLLECTIVE BARGAINING AGREEMENTS? HUD SEEMS TO BE CREATING A BUDGET IN A VACUUM IGNORING BOTH OUTSIDE INFLUENCES AND ITS OWN RELATED BUDGET CUTS. DOING SO IS DISHONEST AND MISLEADING.

PHA/DA URGES CONGRESS TO PROVIDE FUNDING FOR OPERATING SUBSIDIES AT A LEVEL EQUAL TO HUD'S OWN FY 1985 ESTIMATE OF REAL NEED, $1.24 BILLION, PLUS AN APPLIED INFLATION FACTOR. IF THERE ARE IN FACT MAJOR SAVINGS TO BE HAD IN FY 1986 THOSE SAVINGS WILL NOT BE LOST BUT WILL BE APPLIED TO LATER YEAR COSTS. TO CUT FUNDING TO THE HUD PROPOSED LEVEL WOULD ALSO FAIL TO PROVIDE FOR UNEXPECTED PROBLEMS, SUCH AS A SEVERE WINTER AND ITS RELATED INCREASED ENERGY AND MAINTENANCE COSTS, AND PREJUDICE OUT YEAR BUDGETS.

ALSO NOTE THAT SHOULD HUD'S OTHER BUDGET CUTS BE PUT INTO EFFECT, THE CIAP FREEZE IN PARTICULAR, PHAS WILL BE FORCED TO DIP INTO THEIR OPERATING SUBSIDIES AND RESERVES FOR REPAIRS NORMALLY FUNDED UNDER NON-OPERATING SUBSIDY ALLOCATIONS.

THE ADMINISTRATION PROPOSES TO CUT CIAP FUNDING FROM AN FY 1985 LEVEL OF $1.725 BILLION IN BUDGET AUTHORITY EQUIVALENT TO $847 MILLION IN ONE YEAR CAPITOL FUNDING TO A LESS THAN BARE BONES $175 MILLION IN ONE YEAR FUNDING IN FY 1986. IN PRIVATE INDUSTRY, THE STANDARD TO WHICH THIS ADMINISTRATION WISHES US TO ASPIRE, THIS PROPOSAL WOULD BE RIDICULED. THE CIAP PROPOSAL ASKS US TO MAINTAIN A MULTI-BILLION DOLLAR INVESTMENT IN 1.2 MILLION UNITS OF PUBLIC HOUSING WITH $175 MILLION, NATIONWIDE. AND THEN HUD INFORMS US THAT FY 1987 NEEDS WILL BE ONLY $761 MILLION, ALMOST $100 MILLION BELOW FY 1985 FUNDING. WE ALL KNOW THESE ESTIMATES DO NOT REFLECT REALITY. TO FURTHER DELAY

CAPITAL IMPROVEMENTS WILL LEAD TO INCREASED COSTS IN OUT YEARS. A REPAIRED BOILER IS ALWAYS CHEAPER THAN A REPLACED BOILER. REPAIRING ELECTRICAL DEFICIENCIES IS ALWAYS CHEAPER THAN REBUILDING A PROJECT DESTROYED IN AN ELECTRICAL FIRE.

AS THIS SUBCOMMITTEE IS WELL AWARE, A MAJOR NATIONWIDE, $4.5 MILLION SURVEY IS NOW UNDERWAY TO DETERMINE THE TRUE COSTS OF REPAIRING THE NATION'S PUBLIC HOUSING STOCK. MANDATED BY CONGRESS AND AGAINST HUD OPPOSITION, THIS SURVEY WILL PROVIDE A DETAILED ANALYSIS OF THE PRESENT STATE AND FUTURE NEEDS OF OUR PHA'S. IF HUD IS CONFIDENT ONLY $175 MILLION IN FY 1986 AND $761 MILLION IN FY 1987 ARE ALL THAT IS NEEDED, WHY, WE MUST ASK, DID CONGRESS DEMAND THIS SURVEY?

PENDING THE RESULTS OF THIS SURVEY HUD OUGHT TO FUND CIAP IN ACCORD WITH LEGITIMATE FY 1986 NEED. CONTINUATION AT FY 1985'S LEVEL OF $1.725 BILLION IN BUDGET AUTHORITY WILL ENSURE NO RADICAL DETERIORATION IN EXISTING STOCK. BY THIS TIME NEXT YEAR THIS SUBCOMMITTEE MAY HAVE SOME RESULTS FROM THIS SURVEY AND WILL BE BEST ABLE TO DETERMINE THE FUTURE OF THE MODERNIZATION PROGRAM. THAT DECISION WILL BE BASED ON FACTS AND HARD DATA AND NOT UNRELATED ISSUES AND CONCERNS AS IN PRESENT HUD PROPOSALS.

OUR MEMBERSHIP IS ALSO VERY CONCERNED WITH HUD'S PROPOSAL TO CHANGE THE CIAP FUNDING MECHANISMISM FROM TAX EXEMPT BONDING TO UP FRONT FULL COST GRANTS. IN SO DOING THE ADMINISTRATION WOULD TRANSFER EXISTING CIAP AND DEVELOPMENT DEBT DIRECTLY TO THE FEDERAL DEFICIT, IMMEDIATELY INCREASING THE DEFICIT BY $14 BILLION. OMB CONTENDS THIS TRANSFER, WHILE INCREASING FEDERAL COSTS THROUGH THIS DECADE, WILL LEAD TO LONG TERM (POST 1990) SAVINGS. OUR CONCERN IS HAVING OPPONENTS OF HOUSING THE POOR WILL MISREPRESENT THIS DATA AND ACTUAL COSTS TO FURTHER CURTAIL OR ELIMINATE AID AND LIMIT CONGRESSIONAL FLEXIBILITY TO WORK WITHIN THE GENERAL PARAMETERS OF BUDGET FUNCTIONS AND SUBCOMMITTEE JURISDICTIONS. THE LAST TIME TREASURY ROLLED OVER CIAP AND DEVELOPMENT DEBT THE PRESS REPORTED "PUBLIC HOUSING INCREASES FEDERAL DECIFIT $1.5 BILLION." NEITHER TREASURY, HUD, NOR OMB BOTHERED TO EXPLAIN THE REALITY OF THIS PAPER

TRANSFER. WE URGE YOU TO REVIEW IN DETAIL THIS RECOMMENDATION AND SEEK SAFEGUARDS TO AVOID POTENTIALLY DEVASTATING MISREPRESENTATION OF COSTS AND BENEFITS.

HUD PROPOSES NO NEW DEVELOPMENT BE FUNDED IN FY 1986 (14,500 UNIT INCREASE IN PROPOSED BUDGET IS REQUIRED FOR REPLACEMENT UNITS ONLY UNDER EXPIRING CONTRACTS AND PROGRAM TERMINATIONS). A SURVEY OF 12 LARGE PHAS REVEALED AVERAGE WAITING LISTS OF 29 MONTHS FOR FAMILIES (LONGER FOR LARGER FAMILIES) AND 25 MONTHS FOR THE ELDERLY. SMALL PHAS ARE EQUALLY PRESSURED. A PHA IN RURAL UPSTATE NEW YORK WITH 376 TOTAL UNITS HAS A WAITING LIST OF 104. AVERAGE TURNOVER IS UNDER TEN PERCENT ANNUALLY. THE CRUEL IRONY OF ELDERLY APPLICANTS NOT LIVING LONG ENOUGH TO GET APARTMENTS WHILE HUD SEEKS NO NEW DEVELOPMENT IS UNAVOIDABLE. IF EVER THERE WAS EVIDENCE OF THE FAILURE OF THIS ADMINISTRATION'S "SAFETY NET" FOR LOW INCOME AMERICANS THIS IS IT.

IN RECENT YEARS THIS ADMINISTRATION ADMITTED THE NEED FOR MORE LOW INCOME HOUSING AND URGED CONGRESS TO FUND IN EXCESS OF 100,000 HOUSING VOUCHERS. DISCUSSION OF THE VIABILITY OF VOUCHERS ASIDE, HUD NOW DOES NOT EVEN WISH TO FUND ITS OWN VOUCHER PROGRAM. HUD'S PROPOSED BUDGET IS ALSO SOMEWHAT MISLEADING IN THAT ONE MIGHT BELIEVE HUD HAS, UNTIL NOW ADVOCATED DEVELOPMENT ACTIVITY. PIPELINE UNITS, WHICH THE DEPARTMENT ACTIVELY SEEKS TO CANCEL, WERE INITIALLY FUNDED EITHER PRIOR TO THIS ADMINISTRATION OR AGAINST ITS WISHES. HUD'S CALL FOR A TEMPORARY FREEZE IS SIMPLY A ROSE (A WEED?) BY ANOTHER NAME. HUD HAS LONG OPPOSED ANY NEW DEVELOPMENT FUNDING AND ONLY CONGRESS DESERVES THE CREDIT FOR SEEING TO THE CONTRARY.

PHA/DA URGES ADOPTION OF FUNDING LEVELS ADEQUATE TO FUND DEVELOPMENT OF NEW PUBLIC HOUSING AND ADDITIONAL SECTION 8 EXISTING UNITS. THERE CAN BE LITTLE DOUBT AS TO NEED. THE ONLY QUESTION IS OUR RESOLVE. PHA/DA WHOLEHEARTEDLY ENDORSES THE DEVELOPMENT AND SECTION 8 INCREMENTS AS FOUND IN HR 1. THESE ARE NOT PIE IN THE SKY TOTALS AND ARE IN FACT WELL BELOW FUNDING LEVELS OF A MERE FOUR YEARS AGO. IN VIEW OF THE NEED, THESE REQUESTS ARE MODEST INDEED.

HAVING NOW TOUCHED UPON HR 1 I WANT TO RELAY THIS ASSOCIATION'S SUPPORT FOR ITS CONTENTS. MUCH CRITICISM HAS BEEN LEVELED AT THIS LEGISLATION BECAUSE OF ITS RELATIVELY HIGH FUNDING LEVELS. THE FEDERAL DEFICIT AND THE NEED FOR BUDGET CONSTRAINT HAVE BEEN INVOKED IN ITS OPPOSITION. WE URGE THIS SUBCOMMITTEE TO NOTE HOWEVER, THAT OVER THE PAST FOUR YEARS HUD ASSISTED HOUSING PROGRAMS HAVE SUFFERED GREATLY DISPROPORTIONATE CUTS COMPARED TO OTHER FEDERAL AGENCIES. THESE PROGRAMS HAVE ALREADY LOST THEIR POUNDS OF FLESH. THE PROPOSED HUD BUDGET IS PICKING AT OUR BARE BONES. THIS BILL'S TOTAL BUDGET AUTHORITY IS $20 BILLION, HALF HUD'S 1981 AUTHORITY. SINCE THAT TIME OUR NEED HAS INCREASED, NOT DECREASED. CONSUMER PRICES HAVE RISEN, NOT FALLEN. SOCIAL SERVICES HAVE DECREASED, NOT EVEN REMAINED THE SAME. IT IS INHUMANE TO CUT BASIC SHELTER FUNDS UNDER THESE CIRCUMSTANCES.

PHA/DA ESPECIALLY APPLAUDS HR1'S PROVISION FOR HUD REGULATORY REFORM AND URGES THIS SUBCOMMITTEE'S CONCURRENCE. IT IS ABOUT TIME HUD STOPPED TINKERING FOR TINKERING'S SAKE AND RETURNED TO ITS TRUE ROLE OF HELPING TO HOUSE THE POOR; TO ASSIST, NOT INTIMIDATE, LOCAL HOUSING PROVIDERS, THE PHA'S. THIS TESTIMONY HAS ALREADY ADDRESSED PFS, CIAP, DEVELOPMENT, THE MODERNIZATION SURVEY AND PHA/DA HAS LONG VOICED VERY STRONG OPPOSITION TO HUD'S INCOME RECAPTURE POLICY. WE AGREE ANY PUBLIC HOUSING LOST TO DEMOLITION OR DISPOSITION MUST BE REPLACED BY NO LESS THAN A EQUAL NUMBER OF NEW PUBLIC HOUSING UNITS. DEMOLITION AND DISPOSITION IS AN ISSUE BEST ADDRESSED BY LOCAL PHAS AND THEIR COMMUNITIES. IN NO CASE, HOWEVER, OUGHT HUD PROMOTE DEMOLITION/DISPOSITION AS A MEANS OF REDUCING THE NATION'S LOW INCOME HOUSING STOCK. OUR JOINT ROLES AND MANDATE ARE TO SUPPLY SHELTER, NOT DESTROY IT.

AT THIS POINT IT IS APPROPRIATE TO NOTE THAT HUD IS NOW PROMULGATING A MAJOR CHANGE IN THE SECTION 8 EXISTING PROGRAM. PHA'S WILL RECEIVE TEN PERCENT LESS IN ADMINISTRATIVE FEES TO MANAGE THE SECTION 8 PROGRAM. PHAS ARE RESPONSIBLE FOR INSPECTING UNITS, AWARDING AND AUDITING CONTRACTS, ASSISTING FAMILIES SEEKING NEW AND LARGER QUARTERS, DEAL WITH LANDLORD - TENANT PROBLEMS AND HANDLE

ALL HUD PAPERWORK. THERE IS NO EVIDENCE TO SUPPORT SUCH A REDUCTION WITHOUT ADVERSELY AFFECTING PROGRAM PERFORMANCE. HUD'S RATIONALE FOR A 10% REDUCTION IS THAT SUCH A REDUCTION IS CONSISTENT WITH OTHER ADMINISTRATION INITIATIVES AT DEFICIT REDUCTION. NO CLAIM IS BEING MADE RELATIVE TO PROGRAM NEEDS. FINALLY, HUD REFUSES TO INITIATE THIS CHANGE THROUGH ADMINISTRATIVE NOTICE AND COMMENT. THIS FEE REDUCTION WILL SEVERELY IMPACT HOUSING QUALITY STANDARDS, INTEGRATION AND ADMINISTRATIVE OVERSIGHT OF THE SECTION 8 PROGRAM, YET HUD SEEKS NO COMMENTS.

PHA/DA URGES CONGRESS TO ANNUL THIS EFFORT BY HUD AND REQUIRE HUD TO FOLLOW ACCEPTED LEGAL PROCEDURES BEFORE PROMULGATING MAJOR PROGRAM CHANGES.

TO RETURN TO HR 1, THAT BILL IMPROVES THE PERFORMANCE FUNDING SYSTEM MECHANISM TO MORE REALISTICALLY REFLECT LOCAL VARIABLES AND REWARD PHAS FOR EFFECTIVE MANAGEMENT. A REPLACEMENT RESERVE, WE AGREE, WOULD GO A LONG WAY TOWARDS ATTAINING PROGRAM STABILITY AND EFFICIENCY.

SECTION 116 OF HR1 PROVIDES FOR INDUSTRY CERTIFICATION OF PHA PERFORMANCE. PHA/DA STRONGLY SUPPORTS PEER SUPPORT AND ASSISTANCE. WHEN PHAS SEEK SUCH ADVICE, COLLEAGUES SHOULD SHARE EXPERIENCES AND EXPERTISE. IN NO WAY SHOULD THIS BE TURNED INTO A STICK WITH WHICH TO BEAT OR INTIMIDATE PHA'S. PHA'S SHOULD FEEL COMFORTABLE SEEKING BOTH CERTIFICATION AND PEER ASSISTANCE. IF A PHA VOLUNTARILY REQUESTS ACCREDITATION IN ORDER TO OPERATE UNDER SIMPLIFIED HUD PROCEDURES, FAILURE TO ATTAIN SUCH ACCREDITATION OUGHT NOT RESULT IN NEW PENALTIES. PEER ADVICE SHOULD BE PROVIDED TO EVENTUALLY PASS SUCH MUSTER. NEW PENALTIES WOULD ONLY SCARE OFF PHA'S SEEKING ACCREDITATION AND PEER ADVICE.

THE ADMINISTRATION'S PROPOSED ELIMINATION OF THE FARMERS HOME ADMINISTRATION IS NOT A CONSOLIDATION BUT RATHER AN ELIMINATION OF CONSIDERABLE HOUSING ASSISTANCE. NOTE THE WISDOM OF CUTTING HUD STAFF BY TEN PERCENT, CLOSING A NUMBER OF FIELD OFFICES WHILE REQUIRING HUD TO ADOPT AND MAINTAIN A NATIONAL RURAL HOUSING PROGRAM. HUD IS UNFAMILIAR WITH FMHA PROGRAMS AND COMMUNITIES.

FORCING RURAL AND URBAN HOUSERS TO COMPETE FOR FEWER FUNDS DENIGRATES BOTH, ASSISTS NEITHER. RURAL COMMUNITIES ARE CORRECT IN FEARING THIS PROPOSAL WILL LEAVE THEM UNATTENDED. CITIES SHOULD INDEED FEAR FOR THEIR ALREADY DRASTICALLY REDUCED FUNDING.

RURAL AMERICA CONTAINS MANY OF OUR VERY POOR AND WE URGE REJECTION OF ADMINISTRATION EFFORTS TO ELIMINATE THE FMHA. IF EVER THERE WAS A GROUP DESERVING OF WASHINGTON'S ATTENTION IT IS THE LONG FORGOTTEN RURAL POOR.

IN 1983 CONGRESS PASSED LEGISLATION REQUIRING THE ALLOWANCE OF PETS IN ASSISTED HOUSING FOR THE ELDERLY. NO ONE QUESTIONS THE GOOD INTENT BEHIND THAT LEGISLATION, WE DO QUESTION WHETHER ITS IMPACT WAS EXAMINED.

IF EVER THERE HAS BEEN AN ADMINISTRATIVE NIGHTMARE, THIS PETS LAW WILL JOIN ITS RANKS. THE PETS PROVISION FAILED TO TAKE INTO CONSIDERATION THE ULTIMATE SOCIAL AND ECONOMIC COSTS OF ITS IMPLEMENTATION. INSURANCE, VERMIN, HEALTH HAZARDS INCREASED MAINTENANCE COSTS AND LACK OF FACILITIES ARE ONLY SOME OF THE PROBLEMS NOW BEING FACED BY HOUSERS OF THE ELDERLY. WHAT DOES ONE DO WHEN MOST TENANTS DETEST PETS WHILE A SMALL MINORITY WISH TO HAVE THEM? HUD IS NOT PROVIDING ADDITIONAL FUNDS FOR GROUNDS AND INTERNAL MAINTENANCE. NOT SURPRISINGLY, HUD RECEIVED 2,664 COMMENTS IN RESPONSE TO ITS 1984 REQUEST FOR RECOMMENDATIONS. 2,297 OPPOSED THE PETS LAW IN ITS ENTIRETY. PHA/DA STRONGLY URGES CONGRESS TO RETRACT THIS LEGISLATION AND PERMIT INTERESTED PARTIES TO PRESENT THEIR ARGUMENTS AND CONCERNS AND THEN ADOPT A WORKABLE LAW FOR ENSURING THE COMPANIONSHIP OF PUBLIC HOUSING'S ELDERLY. WHILE MANY AT FIRST THOUGHT THIS AN INNOCENT PROPOSAL, FACTS NOW BEAR OUT THE SERIOUSNESS, DIFFICULTY AND COST OF IMPLEMENTING THIS LAW.

FINALLY, PHA/DA IS NOW PREPARING A PAPER DETAILING PRECISE MECHANISMS FOR FURTHER IMPROVING MANY OF THE PROGRAMS DISCUSSED IN THIS TESTIMONY. THE PAPER WILL ALSO PROVIDE INNOVATIVE IDEAS FOR INEXPENSIVE HOUSING DEVELOPMENT. ALL MEMBERS OF THIS SUBCOMMITTEE

WILL RECEIVE THIS STRATEGIES PAPER WITHIN THE COMING WEEKS. WE FEEL THE PAPER WILL PROVIDE MUCH FUEL FOR THOUGHT REGARDING EXISTING HOUSING ACTIVITIES AND NEW MEANS FOR ADDRESSING THE NATION'S FUTURE HOUSING NEEDS.

THE PUBLIC HOUSING AUTHORITIES DIRECTORS ASSOCIATION IS APPRECIATIVE OF THIS OPPORTUNITY TO PRESENT THESE VIEWS AND IS EAGER TO WORK WITH DEMOCRATIC AND REPUBLICAN ALIKE TO ADDRESS OUR MUTUAL CONCERNS.

THANK YOU.

STATEMENT OF GERALD L. ADAMS, DIRECTOR OF RESIDENTIAL SERVICES, ASSOCIATION OF RETARDED CITIZENS IN PRINCE GEORGES COUNTY, MD, ON BEHALF OF CONSORTIUM FOR CITIZENS WITH DEVELOPMENTAL DISABILITIES

ACCOMPANIED BY DAVID ESQUITH, ASSISTANT DIRECTOR, GOVERNMENTAL AFFAIRS OFFICE, ASSOCIATION OF RETARDED CITIZENS IN THE UNITED STATES, AND COCHAIRMAN, CONSORTIUM FOR CITIZENS WITH DEVELOPMENTAL DISABILITIES

Senator GARN. Mr. Gerald Adams, director of residential services, Prince Georges County, Md. That must be Prince Georges.

Mr. ADAMS. Must be Prince Georges.

Good morning, and welcome back.

Senator GARN. Thank you.

Mr. ADAMS. I cannot tell you how impressed I am to sit before a man who has been in space.

Senator GARN. Oh, I don't know, a lot of Senators have been spaced out for years. I don't know that I am any different than others. Mine is just official space travels.

Mr. ADAMS. I am here to talk to you about a different kind of space, that is the space disabled live in. I am from the Association of Retarded Citizens in Prince Georges County. With me is David Esquith who is assistant director of governmental affairs. Dave gets around. He cochairs a housing task force for the Committee for the Consortium of Citizens with Adult Mental Disabilities. That consortium consists of 12 national agencies that provide services, residential services mostly, to persons with adult mental disabilities.

Our testimony is also supported—I would like to add this to the record—our testimony will be supported by two additional agencies; that is the Epilepsy Foundation of America and the National Society for Children and Adults with Autism.

Basically, what we want to say to you today is to say something about the lives of people with adult mental disabilities and their housing needs. Twenty years ago, if you were a person with adult mental disabilities, you would have had four residential options open to you. One of those options would have been institutionalization if you were not able to live independently on your own—cooking, cleaning, et cetera, paying your bills. You would more than likely have been institutionalized. There has been some great deal of testimony made before many committees on the abuses, neglects, et cetera, of our institutions across the Nation.

A second option that is open to you as an adult mentally disabled person is a rather substandard type of option also. That was called a board-and-care facility where persons are crowded into various substandard places in urban areas generally, given no real support.

The third option is one that ironically appears to me to be the one that buys the most dignity and independence to persons. That is, join the approximately 3 million people who live on the street grates of our Nation; turned out to the streets.

The fourth option is to stay forever home with your parents, of course, until they die and then you have three options left.

Over the last 6 years, there has been a tremendous impetus from our Federal Government, has been picked up by the State government—deinstitutionalize to get those folks placed in institutional settings out into community-based services. Agencies like my own provide the community-based services. I want to talk a bit about what is happening in the State of Maryland.

The Governor will sign into legislation this year enough funds to provide residential placements for about 560 persons who are either placed in institutional settings right now in Maryland or are staying with their bags packed at the front door waiting to get in. It concerns me that the Governor will put that much money out here for providers like myself to utilize to serve people in settings and not have sufficient housing for those people to live in.

Presently, there are four programs that are operated by the Federal Government, agencies like mine and 15,000 other agencies across the Nation utilize. They are the Farmers Home Administration Loan Program where agencies in rural areas who are of mind to buy housing in which people can live; the HUD section 202 Direct Loan Program; the HUD section 8 Housing Assistance Payment Program, and Congregate Housing Program.

My own experience is more with the section 202 program and the section 8 Housing Assistance Program. Those two programs do interface.

The Senate Republicans and the White House have agreed the Farmers Home Administration responsibility for housing of people in rural areas would be transferred to the HUD 202 Program. We oppose that mostly because the transfer has been an administrative transfer and there has been no recommendation that funds be transferred to HUD to provide the housing that Farmers Home Administration had heretofore been providing. That would result in a 50-percent decrease in housing in urban and rural areas where I just described the need for greater housing.

We also are aware there is a plan afoot for a 2-year moratorium on HUD section 202 and HUD section 8 housing assistance payments. Since I have just described a crying need and certainly within my own program, I know we have a waiting list of 250 people, with the waiting list growing probably about five persons a day. We get about five pretty desperate calls a day for persons looking for housing. So a 2-year moratorium on 202 and section 8, it seems to us, is unconscienable.

We would recommend four things: One, that the level of appropriations for the HUD 202 Direct Loan Program that will, at a minimum, maintain the fiscal 1985 level of funding for housing in both urban and rural areas, including an increase of 4.4 percent. The percentage of inflation the Congressional Budget Office estimates will occur in housing construction costs over the current year.

A second recommendation is to provide sufficient appropriations in the section 8 Housing Assistance Payments Program to cover the section 202 moneys and to provide a 3.9-percent increase for inflation. That percentage of increase is also the cost of rental housing estimate will increase over the next year.

Our fourth recommendation concerns congregate housing. Congregate housing right now provides services to persons who are in need of more direct interventions, persons with more severe disabilities. We would recommend an appropriation of $10 million to expand the congregate housing contracts currently being funded and to bring the program to its original level.

This program suffered about a 25-percent decrease when it was transferred from title XX to community development block grants.

Our fourth request from Congress and the Senate is the HUD submit the report on the Congregate Housing Program that was due last year. We believe this report would, indeed, substantiate the request that we are making for $10 million for continued funding of persons who are presently receiving those services.

Senator GARN. Thank you very much. We appreciate your willingness to be here.

Do you have any quick comments you wish to add?

Mr. ESQUITH. No; I do not.

Senator GARN. Thank you very much.

[The statement follows:]

STATEMENT OF GERALD L. ADAMS, DIRECTOR OF RESIDENTIAL SERVICES, ASSOCIATION FOR RETARDED CITIZENS, PRINCE GEORGES COUNTY, MD, ON BEHALF OF THE CONSORTIUM FOR CITIZENS WITH DEVELOPMENTAL DISABILITIES TASK FORCE ON HOUSING

CCDD WITNESS

Mr. Gerald L. Adams will testify on behalf of the Consortium for Citizens with Developmental Disabilities (CCDD) Task Force on Housing. Mr. Adams is Director of Residential Services for the Association for Retarded Citizens/Prince George's County, Maryland. He has had extensive experience with both the HUD Section 202 Direct Loan program and with the Section 8 Housing Assistance Payments Program.

ARC/Prince Georges currently operates two group homes and sixteen apartment programs which serve a total of 50 people who are mentally retarded. Thirteen of their clients have Section 8 rent certificates, and the agency feels that their program would be in jeopardy without that form of financial assistance.

In Mr. Adams' prior position as Residential Director of the ARC/Calvert County, he was responsible for residential services for 35 persons in community-based living arrangements. Eight of that agency's group homes were developed with Section 202 loans, and 32 of the program's clients made use of Section 8 certificates.

Adams has also served as a housing consultant for the Epilepsy Association of Maryland and Melwood Horticultural Training Center, Upper Marlboro, Maryland, helping these agencies develop group homes utilizing the Section 202/8 program. He has also informally helped others throughout the state with HUD programs.

Mr. Adams will be accompanied by David Esquith, Assistant Director of the Governmental Affairs Office of the ARC/US. Mr. Esquith co-chairs the CCDD Task Force on Housing.

SUMMARY OF CCDD RECOMMENDATIONS

The CCDD Task Force on Housing respectfully submits the following recommendations to the Subcommittee on HUD-Independent Agencies of the Senate Committee on Appropriations:

- A level of appropriations for the HUD Section 202 Direct Loan Program that will, at minimum, maintain the fiscal 1985 level of funding for housing in both urban and rural areas, including an increase of 4.4%, the percentage of inflation the Congressional Budget Office estimates will occur in housing construction costs over the current year.

- Sufficient appropriations in the Section 8 Housing Assistance Payments program to cover construction loans made in connection with the Section 202 Loan program; and to continue funding rental assistance payments in both urban and rural areas at 1985 levels, with a 3.9% increase for inflation, the percentage of increase in the cost of rental housing estimated by CBO.

- An appropriation of $10 million to extend the Congregate Housing Services contracts currently being funded and to bring the program to its original level.

- o A request from Congress that HUD submit the report on the Congregate Housing Services program that was due last year.

INTRODUCTION

The Consortium for Citizens with Developmental Disabilities (CCDD) is a working coalition comprised of consumer, provider and professional organizations which advocate on behalf of people who are developmentally disabled. The CCDD has been in existence since 1973, advocating for this population in a variety of areas, including the appropriation of adequate federal funding to assure that our nation's disabled citizens can access adequate housing.

The availability of decent housing is critical for all citizens, but people who are disabled often confront more severe difficulties in acquiring adequate living arrangements than those who are not disabled. Many require the availability of services to avoid being institutionalized; for some this may include the need for live-in staff. People who have physical disabilities may require barrier-free accommodations and housing modifications. Together these necessitate the availability of more funds than are needed by other citizens, but disabled persons generally have fewer resources available than the average person.

Though not adequately assessed, the housing needs of disabled Americans are growing. The most recent nationwide data on all types of disability was collected in 1979.[1] That survey estimated that 7.9 million persons in the United States are unable to conduct some major activities of daily living, most of which require special accommodation in housing. More than half of the people who are mentally retarded live in large institutional settings, where many are subjected to the types of abuse heard by the Senate Subcommittee on the Handicapped and the Appropriations Subcommittee on Labor-HHS-Education and Related Agencies at the beginning of April. There are long waiting lists at most of the more than 15,000 privately- and publicly-operated residential facilities identified in 1982 that serve people who are mentally retarded.[2] A substantial number of people with a variety of disabilities are living in substandard board and care homes, and many are homeless. Although no reliable figures are available, estimates of the number of homeless persons in the U. S. today range from 250,000 to 3 million. Seriously mentally disabled adults represent a significant portion of the chronically homeless population. The need for more small community based living arrangements for people who are disabled is overwhelming in every state in the nation. Despite this, federal programs which address the housing needs of people who are disabled are being curtailed. The ten organizations which comprise the CCDD Task Force on Housing believe that this must be reversed.

Programs administered by the Department of Housing and Urban Development have been successfully utilized by many organizations to support independent and group living arrangements for people who are disabled. Chief among these are the HUD Section 8 Housing Assistance Payment and Section 202 Direct Loan programs; the latter of which is supplemented by Section 106(b) seed money loans and the Congregate Housing Services program.

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[1] Health Interview Survey for 1979

[2] Center for Residential and Community Services
University of Minnesota

SECTION 202 DIRECT LOAN PROGRAM

The Section 202 Direct Loan Program and two of the Farmers Home Administration loan programs provide the only capital funding available to some agencies that serve people who are disabled. Each year, the number of nonprofit organizations that apply for Section 202 loans far exceeds the number which receive fund reservations. The percentage of applications to develop housing for people who are disabled has also increased annually, and this results in a decrease of the percentage approved for fund reservations. In rural areas, the demand for loans under the Farmers Home Administration (FmHA) Section 515 and Community Facilities programs has also exceeded the availability of funds.

The Section 202 program provides funding to construct or substantially rehabilitate small congregate housing projects located in residential neighborhoods, thus supporting the deinstitutionalization movement. Slightly more than 14,000 units of Section 202 housing were constructed in 1983 and 1984, about 12% of which were for people with disabilities. Funding for fewer than 12,000 units was reserved in 1985, about 10% of which were for people with disabilities. The FmHA Section 515 Loan program has also been used to develop congregate housing for disabled persons in rural communities, and the FmHA Community Facilities Loan program has been used to develop small Intermediate Care Facilities for the Mentally Retarded, which receive funding for programs and staff through the Title XIX Medicaid program administered by the Department of Health and Human Services. (We do not have data on the number of units under the FmHA programs designed for people who are disabled.) The funding available in all of these programs has been inadequate to meet the demand, however.

This year, Senate Republicans and the White House have agreed that responsibility for rural housing should be transfered to HUD, but recommend no increase in the amount of funding available to HUD once the federal housing programs have been consolidated. This would result in a 50% reduction in the amount of funding available to construct or rehabilitate congregate housing in urban and rural areas.

The CCDD Task Force on Housing opposes consolidation of FmHA and HUD housing programs; but if they are consolidated, the level of appropriation for HUD programs should be increased to, at mimimum, maintain the fiscal 1985 level of funding for housing in both urban and rural areas, with a 4.4% increase for inflation.

HOUSING ASSISTANCE PAYMENTS PROGRAM

Section 8 Housing Assistance Payments support not only people who live in housing constructed through the Section 202 Loan program, but many agencies which provide residential services to individuals who are able to live relatively independently (utilizing rental housing available in the local community) depend upon Section 8 certificates to supplement clients' rent payments. Most of these individuals would be in more restrictive and more expensive living arrangements -- generally funded through other public resources -- were the rent certificates not available. This is therefore a cost-effective way of serving low-income persons who are disabled.

For several years, the administration has proposed converting Section 8 to a voucher program. This would eliminate the two-prong purpose of Section 8 to provide decent affordable housing while stimulating the housing industry to develop a more adequate stock of housing. The voucher program presupposes the availability of an adequate stock of rental housing and provides nothing to stimulate new construction. People who are disabled and the agencies that serve them have experienced great difficulty in acquiring housing to rent, particularly in rural areas where little rental housing is available.

The CCDD Task Force on Housing recommends that sufficient funds be appropriated under the Section 8 Housing Assistance Payments program to support construction loans made in connection with the Section 202 Direct Loan Program, and to continue funding Housing Assistance Payments in both urban and rural areas at 1985 levels, with a 3.9% increase for inflation (the inflation factor for housing used by the Congressional Budget Office).

CONGREGATE HOUSING SERVICES

As people with more severe levels of disability move into the community, there is a growing need for more in-house services. Funding for one of the major sources of assistance for support services, the Title XX Social Services program, was reduced 25% when the program was converted to a block grant in 1981. The Title XIX Medicaid Waiver program for Home and Community Based Services has experienced increasing problems in its implementation over the past three years, and state and county governments have been hard pressed to fill the funding gaps created by reduced federal spending on human services. Support services are essential to keep specialized congregate housing viable. The Congregate Housing Services program has assured that necessary services would be available to tenants of select Section 202 and Public Housing projects.

Although the administration refers to the program as a demonstration project, this is not supported in its legislative history. Appropriations made in 1980 were originally considered to be start-up funds. If funding for this progtam is not continued, clients who have received Congregate Housing Services assistance would risk costly institutionalization, and the Section 202 programs which have received this money could have difficulty remaining open. The Congregate Housing Services program has assured the viability of the few housing projects which were fortunate enough to access the limited funding available.

A report to Congress on the effectiveness of the Congregate Housing Services program was due last year, but has not yet been submitted. It is expected that this report will substantiate the CCDD Task Force opinion that this is a cost-effective method of funding services for people who reside in HUD-constructed housing.

The CCDD Task Force on Housing recommends that $10 million be appropriated to extend the Congregate Housing Services contracts currently being funded and to return the program to its original level. The HUD report to Congress should also be completed so that the program's effectiveness can be adequately assessed to guide future funding decisions.

STATEMENT OF MELVIN J. ADAMS, SENIOR VICE PRESIDENT, NATIONAL ASSOCIATION OF HOUSING AND REDEVELOPMENT OFFICIALS

Senator GARN. Next, Melvin J. Adams, senior vice president, National Association of Housing and Redevelopment Officials.

Mr. ADAMS. Senator, I will try to be brief and answer any questions you might have. This is a difficult time for you and your colleagues. Budget deficits are serious matters, and the needs of the country are also serious. What I will try to do in my remarks is to point out how some of these problems look from someone who is working in the vineyards, as you once worked in the vineyards—you still are, but a different vineyard.

NAHRO believes the UDAG Program has been a good program. It has done some very find things in our country. It should be continued. We think that the selection criteria should be adjusted so more parts of the country have a fair chance of participating. That is not before the Appropriations Committee, but if that is done—we hope it is—there should be money to carry the program out.

Community development also has been a very successful program, and over the last 4, 5, 6 years, it has become truly a grassroots program. It works in neighborhoods. It is helping low- and moderate-income neighborhoods improve themselves and working with the people.

The 10-percent cut, plus the shift from 70/30 urban large and small to 60/40, could be very harmful, and we would hope it could continue to be funded at its present level.

One of the problems with these short-term cuts is it assumes an income screen to the Federal budget and budget deficits declining. History has taught us, whatever we think the budget deficit is to be next year, it usually is a little larger. The problems difficult this year will be equally as difficult next year. Cuts are seldom restored.

We think there is clearly a need for housing production. In my community, if someone applies for public housing today, they will wait 20 years to get an apartment. If they apply for section 8, we stop taking applications because if they applied today, it would take 100 years. The need is serious.

Finally, the existing stock of public housing is something that is a national asset, both in terms of monetary considerations and in human terms. It makes no sense to adopt a budget that causes that stock to deteriorate. We think the Comprehensive Improvement Assistance Program should be funded not just for emergency needs at the budget the President recommended, but do comprehensive modernization as well and at the level, dollar level that exists in this year's budget.

We believe that the appropriation for operating subsidy is underfunded and the $3 million proposed rescission should not be made. I would like to talk a little bit about Dade County because I think we are typical of many communities.

One of the formulas in the PFS is what is known as the regional cost factor. The national average is 100. Some regions are high cost; some are low. The Southeast, where we are located, is low cost. Seventy-nine percent of the national average, even though in Dade County, the cost of living is much, much higher than in the Southeast, probably equal to the national average. If our formula had the national average as a criteria, we would have $3 million more.

In addition, we have had costs beyond control over the last 10 years. Social Security payments have gone up; the contribution that the State is required to be made by government to the retirement system has gone up; the cost of medical insurance payments have gone up; the cost of garbage fees have gone up; and I think most communities have gone to increasing fees rather than taxes.

The operating subsidy formula does not reflect that. That is why we think the proposed rescission should not be made and the funds ought to be used to cover costs beyond control.

I think in the Appropriations Committee, everybody comes and talks about we need more money, don't cut this; don't cut that. A logical question you might have is, what are we trying to do for ourselves? We think there are improvements that we can make in our operation. One of the things the NAHRO has done is it has developed what is called a proclaimer approach where many of the requirements that HUD has would not have to be submitted to HUD for approval. We would proclaim we had met certain criteria. This happened in the Community Development Program about 15 years ago. HUD could impose an audit. If it turns out we proclaim differently, HUD could deal with this.

As the previous witness said on behalf of PHADA, why have regulations that apply to everyone.

We also are developing some professional performance standards. We think we ought to measure up to some standards. We want to develop them as a professional organization and get HUD to review them and try to come up with some kind of standard.

Finally, we think the performance funding system needs to be adjusted so that costs beyond control are mandated to be covered so that if we make more income from having a vacancy rate less than it is projected, that additional income can be shared with the Federal Government, try and make it more equitable and good management.

My final comment is, there was an article in the latest Journal of Housing by the Director of the Alexandria, La., Housing Authority, which I would hope would be put into the record. That authority has not needed operating subsidies. With the changes in the law last year in computing income and with utility allowance increases, that authority now needs operating subsidy.

I would think that the HUD projection of the need for operating subsidy has not assumed that anyone not now getting it would need it. I just think that their needs are underestimated by about $400,000. I would like to add this to the record.

Senator Garn. We will be happy to include that in the record. Thank you very much for your testimony.

[The statement follows:]

STATEMENT OF MELVIN J. ADAMS, SENIOR VICE PRESIDENT, NATIONAL ASSOCIATION OF HOUSING AND REDEVELOPMENT OFFICIALS

I. INTRODUCTION

Mr. Chairman and Members of the subcommitte, I am Melvin J. Adams, Director of the Dade County, Florida Department of Housing and Urban Development and Senior Vice President of the National Association of Housing and Redevelopment Officials. As you know Mr. Chairman, NAHRO is a 50 year old association of professionals who administer low-income housing, rehabilitation, and community development programs in localities across the country. We represent over 5000 individuals and 2000 local agencies involved in carrying out these programs. We appreciate this opportunity to comment on the important housing and community development funding issues facing this nation and to outline NAHRO's positions on them.

During the past 50 years, Congress clearly articulated a national policy to create and sustain vital urban communities and increase the supply and affordability of housing for lower income, as well as moderate income, Americans. It has backed up this policy with resources, as this Subcommittee, which has played so important and a positive role in sustaining the national commitment, well knows.

The Administration has proposed a budget that would kill any hope for hundreds of thousands of low and moderate income Americans for decent, affordable housing and foreclose any prospect of undertaking desperately needed revitalization in hundreds of American cities and towns. It would insure the continuing deterioration of neighborhoods that could be saved and turned into prospering communities. That budget repudiates the 50-year-old federal commitment to decent housing and a suitable living environment for every American.

Our studies show that we need to build at least 350,000 units of affordable rental housing for low and moderate income households every year between now and the end of this century just to replace the number of physically deficient or overcrowded units now in the inventory.

The number of homeless persons is reaching epidemic proportions. In almost every community, housing needs of the old, the disabled, single parent families and the poor are going unmet. Now even intact working families are crowding into emergency housing and homeless shelters. A budget that provides no new assisted housing in any form for the next two years is unacceptable. At a time when the waiting lists for assisted housing in virtually every American city are long and growing longer, that budget is indefensible.

The Administration has not argued that these programs aren't doing the jobs they were intended to do. Instead of proposing better ways to meet the nation's most critical housing and community development needs, it simply turns its back and walks away from the federal responsibility for meeting those needs.

The fact is that the cuts proposed by the Administration have little or nothing to do with reducing federal deficits or balancing the budget. This Administration is ideologically opposed to these programs and is using the deficit issue as an excuse to terminate or cripple them.

II. THE ADMINISTRATION'S BUDGET AND LEGISLATIVE PROGRAM/CONGRESSIONAL RESPONSE

The Administration has selected 1985 as the year to attempt a "knock-out blow" to the 50-year old federal commitment to national housing and community development needs. The evidence for this assertion is the proposed budget for HUD for fiscal year 1986 and the Administration's legislative program.

Those prescriptions, if adopted by Congress, would among other things:

-- eliminate Urban Development Action Grants;

-- reduce by 10% funding for Community Development Block Grants, repeal Section 108 loan guarantees, eliminate the lump sum draw down and reduce the amount of funds allocated to large cities;

-- eliminate housng assistance plan requirements;

-- eliminate the Section 8 moderate rehabilitation program and funding for new programs authorized in the 1983 Housing and Urban-Rural Recovery Act, including housing development grants (HODAGs), which would be repealed, and the

Administration-sponsored rental rehabilitation grants program; which would be halted for two years;

-- suspend any new activity in low-income housing assistance for two years;

-- eliminate the Section 235 homeownership program;

-- reduce operating assistance and modernization funding for existing public housing;

-- change the system of long-term funding for public and Indian housing development and modernization;

-- increase the premiums for FHA loans and guarantee fees for the mortage-backed securities program of the Government National Mortgage Association;

-- force HUD to divide its already limited housing assistance budget in order to provide housing in rural areas previously served by FmHA whose housing program are to be terminated; and

-- further reduce HUD staff.

NAHRO has grave reservations about many of the Administration's proposals. We strongly object to the elimination of workable, successful programs such as urban development action grants (UDAG), Section 312 loans, Section 108 guaranteed loans, and Section 8 moderate rehabilitation. We seriously question the wisdom of proposing housing vouchers for permanent status, at the expense of the proven Section 8 existing housing program. We believe that the housing development action grant (HoDAG) program should be extended, not eliminated, and be given a full opportunity to have its usefulness tested in a time of critical rental housing needs.

Mr. Chairman, this Association would like to point out that the Administration's 1985 legislative proposals would change some long-standing mechanisms, such as the financing of public housing development and modernization, and scrap the requirements for a local housing assistance plan. These mechanisms were adopted by the Congress with specific purposes; they should not be discarded without a most careful consideration of their original purposes, and a determination as to whether the new mechanisms will meet these purposes. In terms of the proposed change in the method of financing public and Indian housing development, and public housing modernization, NAHRO is preparing a detailed analysis of the Administration's proposal as it relates to the current financing mechanism. Among the important issues being explored are (1) the relative cost of short-term borrowing by the U.S. Treasury (the Administration proposal) vs. long-term tax-exempt borrowing by public housing agencies on the private market (the current system), (2) the relative benefits of the current and proposed systems in achieving comprehensive modernization of public housing; (Would the proposed annual grants be at sufficient levels to facilitate a multi-year comprehensive modernization program rather than a one year, short-term "fix-up"?) (3) The relative budget impact of the two systems if current capital improvement levels are maintained; in FY 1985, the $1.725 billion in budget authority would require an annual budget outlay for amortization of $86,250,000, while the proposed grant system would require an annual outlay of $846,834,000. NAHRO will make this full analysis available to the subcommittee in the near future. In any event, NAHRO would strongly urge that the authority for PHAs to undertake long-term financing for development and modernization be retained in the U.S. Housing Act of 1937; changing circumstances in the financial markets require options in financing methods.

In terms of the requirement for a local housing assistance plan (HAP) as part of a locality's application for CDBG funds, NAHRO strongly advocates its retention. The Administration's rationale is that since there will be no federal funding for new assisted housing construction or substantial rehabilitation there is no need for a HAP requirement; this is certainly myopic vision. The HAP was adopted by the Congress in 1974 as an incentive for localities to assess their housing needs and to link housing assistance with community improvements undertaken with CDBG funds -- all under a partnership with the federal government. The HAP has an intrinsic value in recognizing the essentially local nature of housing markets, and in assessing housing needs and implemention at that level. The chief obstacle to HAP implementation since 1974 has been frustration by local communities in identifying local housing needs far in excess of available housing assistance funds. The need is not to eliminate the HAP requirement, but to sustain federal housing development assistance and to stimulate its use in conjunction with total community improvement.

Furthermore, NAHRO strongly opposes the implementation of a 60-40 percentage split between urban and rural areas in the CDBG program; and a 50-50 percentage split between these areas in housing assistance programs. Dividing reduced funding among greater numbers of eligible recipients is a feeble .pa answer to the nation's housing and community development needs. NAHRO supports continuation and adequate funding of FmHA programs which are designed to deal with the shelter needs of the rural poor.

We would like to comment on the initial Congressional reaction to the Administration's funding proposals. While neither this subcommittee nor its counterpart in the other body have acted on the Administration's proposals, the Senate leadership has reached agreement with the Administration on budget and funding questions. We find nothing in this agreement to applaud. Indeed, we are appalled at the proposals to eliminate UDAG, FmHA housing programs, EDA and SBA; slash public housing operating subsidies; cut CDBG and kill HODAG while imposing a 2-year moratorium on rental rehab. We find the proposal to freeze HUD assisted housing programs at fiscal year 1985 levels, wipe out FmHA housing assistance programs and divide HUD resources among the two sets of intended beneficiaries to be especially mischievious and destructive.

Also, Mr. Chairman, NAHRO believes Congress should reject the Administration's proposed recission of $253 million in fiscal year 1985 public housing subsidies. There are sound reasons for this position.

Mr. Chairman, let me take a moment to draw upon my own experience to tell this subcommittee something about the fiscal realities we face at the local public housing authority level and how those realities argue against granting the Administration the rescission it has requested.

Here is the story of our attempts to try to deal with costs beyond control in Dade County.

Between FY 1975 and FY 1985, our federally-determined allowable expense level increased by 110 percent. This is approximately the same percentage increase as the consumer price index. In effect, we are spending the same amount of money today as we did 10 years ago to manage and maintain a public housing unit. What this means is that uncontrollable costs and new needs and services that have increased in cost faster than the consumer price index must be funded outside the operating budget or by reducing the amount of money spent on other services.

Between FY 1975 and 1985, the following uncontrollable costs have increased at a greater rate than our allowable expense level.

1. Fringe benefits have increased by 285 percent, from 14 percent of wages to 27 percent of wages. Today these expenses are $1,000,000 in excess of what HUD will recognize for operating subsidy. This increase has been caused by the following:

   a. The base salary for social security has increased from $13,200 $39,600.

   b. The social security tax rate has increased from 5.85 percent to 7.05 percent.

   c. Our contribution to the Florida Retirement System has increased from 6 percent to 12.24 percent an employee's salary as a result of a change in State law.

   d. Our share of the cost of medical insurance increased from $155.22 to $1,909.70 per employee.

2. The cost of garbage collection has increased by 645 percent. Today these expenses are $500,000 in excess of what HUD will recognize for operating subsidy. This overall increase has been caused by the following:

   a. Dumping charges at the County pit have increased from $7.00 per ton to $16.00 per ton.

   b. Garbage collection in the City of Miami has increased from $38 per apartment and $75 per home in 1981 to $80 and $160 respectively in 1985. Prior to 1981, there was no user charge since it was totally tax supported, and we are tax exempt.

   c. Garbage collection in the unincorporated County has increased from $52.00 per household and $1.60 per cubic yard in 1975 to $211.00 per household and $9.60 per cubic year in 1985.

In 1975 we provided limited social services to our residents. These included only case-work services (diagnostic and referral) and community organization services to a limited number of tenant councils.

Since then, conditions have changed significantly. The average age of our elderly population has increased to 76, and this has required us to provide significantly more services to the elderly. We now provide homemaking services to the elderly. Crime has increased in the vicinity of some of our senior citizen projects, and we have had to provide security guards. Partly because of the aging of our elderly tenants and partly because of the crime problem, we have had to provide transportation services. The growing tri-ethnic character of our elderly tenants requires us to provide extra social services. We built a congregate housing project in 1978 and have had to provide special services for that development. We have instituted the sound management practice of screening families on the waiting list before we offer them housing, and this is done by our social services staff. With the sound, growing Federal emphasis on tenant involvement, we have substantially increased our community organization staff. We have hired staff to organize programs in our projects. In an attempt to help our families move off the welfare role and on to the payroll, we have hired staff to develop a tenant skills bank and find employment for tenants. We have hired a home management training staff to counsel families on money management, the proper care of appliances, etc. We carry out pre and post-occupancy training programs. All of these programs have resulted in a substantial increase in the cost of social services. Since 1975, the cost have increased by 400 percent. Today these expenses are $1,700,000 in excess of what HUD will recognize for operating subsidy.

Since our allowable expense level was increasing at a much slower rate than the items described in the previous section, the only way we could remain solvent was to dangerously reduce the rate of increase in other expediture categories. Maintenance labor and maintenance materials have especially suffered from this approach, as the following shows:

1. Since 1975, the amount we spend on maintenace labor has increased by only 76 percent.

2. Since 1975, the amount we spend on maintenance materials has increased by only 41.5 percent.

3. In the most recent ten-year period we spent only $2.8 million from our operating budget for extraordinary maintenance and capital improvements. We should have spent much more, but we would have not been able to spend anything if we had not been able to keep $3 million of income earned in excess of our budget estimates. (HUD is considering issuing a regulation that would prevent all housing agencies from keeping such extra income.)

It is apparent that there needs to be a real increase (more than inflation) in the maintenance budget in future years. This conclusion is based not only on the three facts described above, but also on the following:

1. The amount of deferred maintenance is growing, as our housing gets older. In our case, $5.4 million should be spent or set aside each year for extraordinary maintenance and replacement of dwelling equipment. This is a modest sum to help preserve a $500,000,000 investment.

2. The possible elimination of the Federally-funded modernization program would impose unmanageable demands on our existing maintenance staff and operating budget. Approximately $2,500,000 per year would be needed just to compensate for this loss. Our 48 year old Liberty Square project, our 45 year old Edison Court project, our 43 year old Victory Homes project, our 37 year old Morretti project, our 36 year old Lincoln Gardens project, and our 36 year old Larchmont Gardens project all need major renovation. There are 2,150 apartments in these projects. There is no way these activities can be funded from our operating budget, but the lack of these funds will increase the need for regular and deferred maintenance activities.

3. Our inventory of old and obsolete dwelling and maintenance equipment is growing rapidly. For example, we are still using 30 trucks and other maintenance vehicles that are more than 10 years old. In addition, we still have 700 refrigerators and 1,600 stoves that are at least 15 years old.

Mr. Chairman, I hasten to point out how that very difficult financial condition would be impossible if Dade County were not providing us with substantial financial assistance. The County provides $500,000 in general fund monies and $1,250,000 in community development monies to help cover essential services. In addition, the County provides us free legal services, free financial services, free personnel services, free staffing for our quality circle programs and a free analysis of and recommendatons for improvements to our maintenance operation by the Office of Productivity Analysis.

Subsections (c) and (d) of Section 990.108, Title 24 of the Code of Federal Regulations provide for increases in the allowable expense level for "costs attributable to changes in Federal law or regulations" and for "costs beyond control of the PHA". The decision on any increase is at "HUD's sole discretion". Dade County will request such increases when it submits its budget for the fiscal year July 1, 1985, to June 30, 1986.

It is essential that Federal HUD recognize the inadequacy of the operating subsidy formula as it applies to situations such as that we face in Dade County. If this does not happen, we will have major reductions in social services and in maintenance services. The lack of social services will cause us to neglect our elderly tenants, in effect merely warehousing them. The lack of social services will deny families needed employment opportunities and youth programs. And the lack of adequate maintenance services will start an accelerating downward cycle of inadequate maintenance and resultant blight. From a financial point of view, we cannot let this happen to a housing stock whose value is at least $500,000,000. More importantly, from a human point of view we cannot let this happen to the 40,000 residents of our public housing. The examples I have given you are specific to Dade County; similar situations exist in housing authorities around the country. Therefore, NAHRO believes that any funds actually not needed for funding FY 1985 operating subsides should be set aside and utilized to fund costs beyond the control of PHAs, as well as for planning costs associated with the preparation of CIAP applications. We urge this subcommittee to so instruct HUD.

At this point I would like to comment particularly on some of the programs of the Department of Housing and Urban Development and state NAHRO's position on their funding levels. Perhaps I can offer some balance to an Adminstration viewpoint that assumes failure and counsels retreat.

III. HUD PROGRAMS

PUBLIC HOUSING OPERATIONS AND FINANCE

First, let me comment on the public housing program. The program provides homes for some 1.3 million households today and has housed millions of others over its 48 year history.

While some public housing has been beset with problems, most housing authorities are success stories where well designed and well managed units continue to prove that public housing can be the cheapest, most reliable and most flexible means of decently housing low and moderate income persons.

As you know, Mr. Chairman, the Performance Funding System (PFS) utilizes federal appropriations to fund the gap between the cost of PHA operations and income received. While, there is general support for the system among PHAs, during 1984 and 1985 HUD has attempted to reduce funding for operations by making administrative and regulatory changes in regard to vacancy rules, income recapture and other modifications to the performance funding system. NAHRO calls upon the Congress to resist these measures. They are essentially counterproductive if not destructive as my own experience will attest.

Congress should reject the reduced and inadequate level of funding for operating subsidies for FY 1986 proposed by the Administration. NAHRO believes that a FY 1986 appropriation of $1.423 billion is needed to fund public housing operations. NAHRO agrees that there are some changes which can be made to make the PFS more effective and efficient, encourage good management and remove disincentives. The changes are as follows:

- A formal expense adjustment process should be established.
- Occupancy rates should be utilized as an incentive to encourage good management by fully funding a 95% occupancy rate and sharing income generated as a result of higher occupancy rates.
- "Other income" should be eliminated from the calculation of operating subsidies to encourage PHAs to be better managers and permit them to benefit from such additional income.
- PHAs should adopt a performance standards system which can be the basis for reduced oversight and regulation by HUD for those which achieve performance goals. NAHRO is working on its own performance management proposal and when the report is completed later this month we would like to submit it for the record of this hearing.

- A minimum operating reserve (equal to 20% of the annual operating budget) should be established with PHAs receiving funding adjustments to maintain this level.

Additionally NAHRO recommends that the 10% elderly deduction be reinstated and that there be a 10% earned income deduction for working families. Also, we believe that a minimum rent should be set for families on 100% AFDC which should be the portion designated by flat grant states for housing and the shelter allowance in "as paid" states.

NAHRO supports the establishment of a formal review process for allowable expense levels and a "ceiling" or maximum rent which does not exceed the FMR for the area and which would be available to tenants for a limited period of time. We also call for the end of the present 5 and 25% limits on rentals to families above 50% of the median income.

On a related subject, NAHRO opposes the Administration's attempt to freeze PHA wages by adjusting the inflation factor of the allowable expense level under PFS. We question the Department's authority to impose such a freeze.

PUBLIC HOUSING MODERNIZATION

Another area of concern for NAHRO is that of public housing modernization and, in particular, the Comprehensive Improvement Assistance Program (CIAP). Public housing agencies feel strongly that CIAP is an effective program both for bringing substantial numbers of public housing units back into use, and for increasing the useful life, efficiency, and cost effectiveness of currently occupied units. It has become an essential tool in efforts to conserve the $75 billion national investment in the public housing inventory. For FY'86 the Administration is proposing to fund only $175 million in emergency modernization.

NAHRO believes CIAP should be funded at a level of $1.794 billion for FY86. This is the fiscal year 1985 level plus an inflation adjustment of 4%. This level rejects a moratorium on comprehensive modernization which would permit the cycle of deterioration of the public housing inventory to accelerate. NAHRO also calls for development and funding of a replacement reserve system based on capital needs.

ASSISTED HOUSING

As suggested earlier, the Administration's proposal to institute a two year moratorium on any new assisted housing activity completely ignores the documented need for new rental housing construction and substantial rehabilitation for lower income households. It is our understanding that the Senate leadership-Administration budget agreement assumes funding assisted housing at fiscal year 1985 levels. This is, in itself, a level of funding NAHRO will reluctantly support providing it means that approximately 100,000 incremental units of assisted housing will be added to the HUD inventory.

It is appropriate to point out here that over 75 percent of all renters in 1981 had incomes under $20,000 and 43 percent had incomes under $10,000. These people face a declining stock of units they can afford, many of which require rehabilitation. The ultimate result is a rising tide of "homelessness" and families seeking emergency shelter.

Ironically, it is these households that Federally assisted housing construction and rehabilitation programs were designed to serve; and it is these programs that would be halted at the very time they are needed most. The rate of newly-authorized assisted housing, which had reached 600,000 units per annum and was at a level of over 200,000 units in 1981, would be brought to a complete stop if the Administration's program were accepted.

A level of 350,000 newly constructed or substantially-rehabilitated units is necessary for each year until the end of the decade, just to address the elimination of currently-deficient or overcrowded units in the national housing supply. All of the existing federally assisted production programs--public housing, Section 202 and HODAG -- are required for this effort. In FY 1986 NAHRO supports 21,000 units of newly-constructed or substantially rehabilitated public housing, Indian housing, and Section 202 housing.

In this regard, let me comment briefly on proposals aimed at making public housing homeownership available to public housing tenants. Bills to accomplish this purpose have been introduced by Representative Kemp in the House and by Senator Symms in the Senate and HUD is launching a demonstration project. NAHRO supports the concept of affordable homeownership opportunities for low income persons. We also believe there is a growing need for rental housing for low income families. Therefore, it is our position that public housing units should not be removed from the rental housing stock unless they are replaced on a one for one basis. Furthermore, we believe any homeownership program should include a reserve fund or other mechanism for the payment of maintenance expenses, as well as supportive services aimed at assuring remunerative employment for low income homeowners.

THE SECTION 8 EXISTING PROGRAM

The Administration, as you know, has proposed a moratorium not just on incremental units under the Section 8 existing program, but on its favored voucher program as well. This would be done notwithstanding the acknowledged success of the Section 8 existing program and the increasingly ominous housing shortage among low income persons including low income wage earners.

During FY 1984 and FY 1985 there were 73,500 housing vouchers funded. While the voucher program was funded by the Congress as a demonstration program, it has yet to be implemented and evaluated. Now the Administration seeks to have it made a permanent program. By contrast, the Section 8 existing program has already proved to be a successful means of providing assistance to low income persons seeking standard rental housing in the private market. The demand for housing assistance by low income persons is growing and the pressure to provide assistance through Section 8 Certificates has increased due to the lack of production of low income rental units. A NAHRO survey conducted during the summer of 1984 indicates there is an average of eleven applicants for each certificate issued.

In the Section 8 existing program, local housing authorities perform important functions, including informing eligible families of the availability of housing assistance, encouraging owners to make their units available for lease by eligible families, setting the maximum amount of housing assistance payments that can be used for family-paid utilities, receiving applications from families and determining their eligibility for assistance, selecting families for certificates of family participation, inspecting units prior to occupancy and periodically thereafter to assure that they are maintained in decent, safe and sanitary condition, approving leases, making housing assistance payments to owners, reexamining family income and composition, and redetermining the amount of rental contribution required from the family. For these services the PHA receives an Administrative Fee, which NAHRO feels should not be arbitrarily reduced by 10% as proposed by the Administration.

Additionally, NAHRO is opposed to the Administration's further attempts to cripple the program by freezing the fair market rent. Experience two years ago demonstrated that no annual increase in the FMR severely restrained certificate holders from securing affordable housing and discouraged landlord participation.

NAHRO opposes any moratorium on incremental Section 8 Existing certificates and supports 75,390 incremental certificates for FY 1986. This level continues a proven successful program to help meet the growing need for housing assistance.

THE COMMUNITY DEVELOPMENT BLOCK GRANT PROGRAM

As you know, Mr. Chairman, the Community Development Block Grant program provides funds to cities, counties, towns, and states and was authorized in 1974 for the primary purpose of developing viable urban communities with the principal benefit to low- and moderate income persons.

Despite the success and popularity of the Community Development Block Grant program, the Administration is proposing a 10% cut in funding for FY86. We understand that the Senate leadership-Administration agreement endorses this cut. The Administration also proposes to increase Small Cities funding from 30 percent to 40 percent of the available CDBG funds, thereby reducing the amount available to individual entitlement cities. In addition, the Administration is again proposing to eliminate the Section 108 loan guarantee program, a supplement to the CDBG program which has proven to be an asset to many communities. The 108 program authorizes HUD to guarantee loan obligations of communities to finance large scale longer term projects that would otherwise not be undertaken. Communities are authorized to use their CDBG funds to repay the loan, usually within six years. Future grants are pledged as security. NAHRO supports retention of the Section 108 loan guarantee program at a level of $225 million and urges HUD to encourage more widespread use of the program.

NAHRO opposes any effort to reduce the funding level for the CDBG program, and supports a funding level of $3.611 billion, which is the fiscal year 1985 dollar level plus a 4 percent inflation adjustment.

THE URBAN DEVELOPMENT ACTION GRANT PROGRAM

Lastly, Mr. Chairman, NAHRO would like to comment on the Urban Development Action Grant program. Here is a program the Reagan Administration ought to like and continue to fund.

As of November 19, 1984, after almost seven years of program operation, UDAG has assisted 2,410 development projects in 1,084 cities. Total investment of private, UDAG and other public dollars in these projects will exceed $26 billion.

Approved UDAGs contain almost 95,000 housing units, with an even division between construction of new housing units and the rehabilitation of existing units. Thirty-nine percent of the units are reserved for lower income families having incomes below 80 percent of the median.

UDAG projects approved to date are expected to generate a total of 479,178 new permanent jobs, provide over 467,000 construction jobs and retain over 120,000 jobs that otherwise would be lost to residents of distressed cities.

Approved projects are expected to attract a total of $20.6 billion of private investment or $5.60 of private investment for each dollar of UDAG funding. They are expected to produce a total of $521 million of additional property taxes and other local taxes annually for cities having approved UDAGs -- or $0.10 of annual local tax revenue for each UDAG dollar.

The Administration proposes termination of the Urban Development Action Grant Program after September 30, 1985. The reasons for opposition to UDAG -- apart from the general need to reduce budget deficits -- usually include one or more of the following criticisms of the program by the Office of Management and Budget:

- Many UDAG projects would occur anyway, albeit in a different location, with little net impact on the national economy; therefore the program serves no "national purpose".

- The economy has recovered from the recent recession; hence, UDAG is not needed.

- There are other sources of funding for the projects UDAG approves: state budget surpluses and local surpluses.

- The Federal government should not interfere with the free enterprise system through the UDAG program.

These arguments ignore the important positive contributions of UDAG-assisted developments to the revitalizaton of the communities in which they are located; the uneveness of economic recovery from locality to locality; the difference in fiscal condition from state to state and from city to city; and the positive mutual benefits that can result when the public and private sectors work cooperatively to carry out development projects.

The Administration's position repudiates the notion of a federal role and responsibility in the revitalizaton of distressed communities. NAHRO believes this is wrong. We strongly suport continuation of the UDAG program at a level of $458 million, which is the fiscal year 1985 dollar level plus an inflation adjustment of 4%.

NAHRO FUNDING RECOMMENDATIONS FOR FISCAL YEAR 1986

Mr. Chairman, attached to my written statement is a table setting forth the NAHRO's funding recommendations for HUD programs in fiscal year 1986 and a proposed utilization of budget authority for HUD-assisted housing in FY 1986. In addition to recommending 100,000 incremental units of assisted housing, we are asking the Congress to fund most HUD programs at the fiscal year 1985 level plus 4% for an inflation adjustment.

We are not happy with those particular recommendations. They are too few and too little. They do not come close to meeting the need, and they do not move us very far toward our goal of a decent home and a suitable living environment for every American family. They are a product of compromise, Mr. Chairman -- compromise between what ought to be done and what we can do over the objections of the Executive Branch. What we are saying is that if there is to be no real growth across the board in federal programs, then we accept no real growth for housing and community development.

Accepting the Administration's proposals or the "compromise" agreement will lead to growing social problems that will cost all of us dearly in the future. The consequences of increasing numbers of homeless citizens and others forced to live in overcrowded and substandard housing will ultimately cost much more than the cost of providing them with decent shelter in federally assisted housing. The cost of allowing neighborhoods to turn into slums will ultimately be far greater than the cost of adequately funding urban development action grants and community development block grants.

Those of us at the local level have worked very hard to meet the demands on our agencies in the face of reduced funding over the past four years. We have reduced staff. We have improved management to achieve cost savings. We have developed innovative approaches to stretch our development dollars and attract private investment. We have even been forced to postpone needed maintenance on public housing stock, which represents a public asset worth $75 billion, in order to make ends meet.

Mr. Chairman, low income people in need of housing and deteriorating neighborhoods in need of revitalization often have trouble making their voices heard and their needs known. But NAHRO believes that Americans are not penny wise and pound foolish. We believe that when Americans know the facts, when they understand the need, when they recognize that the entire community benefits from these programs, they will give their full support to these programs.

We can only hope that Congress will respond by rejecting totally inadequate proposals for housing and community development, and vote to sustain the federal commitment and the resources that allow us to work together at all levels of government to build a better America.

Thank you.

NAHRO "FREEZE LEVEL" RECOMMENDATIONS: FY 1986

(FY 1985 DOLLAR LEVEL PLUS 4% INFLATION,
EXCEPT WHERE NOTED).

		Department of HUD FY 1985 Level	NAHRO Recommendation FY 1986
1.	Community Development Block Grants (CDBG)	$3,472 Billion	$3,611 Billion
2.	Urban Development Action Grants (UDAG)	$440 Million	$458 Million
3.	Section 108 Loans	$225 Million	$225 Million (level of authorization)
4.	Section 312 Loans	$130 Million	Loan Repayments and other income
5.	Rental Rehab Grants	$150 Million	$156 Million
6.	Urban Homesteading	$12 Million	$12.4 Million
7.	Public Housing Modernization	$1,725 Billion	$1,794 Billion
8.	Public Housing Operating Operating Assistance	$1,469 Billion	$1,423 Billion (PFS estimate and adjustments for "costs beyond control" and "base year."
9.	Housing Development Action Action Grants (HODAG)	$115 Million	$120 Million
10.	Section 235 Home Ownership	$150 Million	$156 Million
11.	Section 202 Loan Fund	$631 Million	$631 Million (12,000 units)
12.	Policy Development and Research	$16.9 Million	$20.0 Million (Inflation in ongoing surveys)
13.	Welfare Housing Demonstration	---	$10.0 Million (authorized in 1983 Act.)
14.	Congregate Housing Services	$4.1 Million	$10.0 Million (Required to renew expiring contracts)

15.	Housing Counseling	$3.5 Million	$3.6 Million

16. Assisted Housing (Excluding Public Housing Modernization)

Available budget authority - FY 1985 -- $10.0 Billion

Available budget Authority - FY 1986 - $10.8 Bilion (NAHRO recommendaton

Minus uses other than for new activity	1.4
Available authority for new activity	$9.4 Billion

Maintenance of FY 1985 level of 100,000 New Assisted Units:

	Units	Budget Authority*
Public Housing (Conventional)	6,500	$1,278
Public Housing (Indian)	2,500	406
Section 202/8	12,000	1,777
Section 8 - Mod Rehab	5,046	440
Section 8 - Existing	75,390	5,479
Vouchers**	--	--
TOTAL	101,436	$9,380 Billion

*Computed on the basis of FY 1985 unit cost increased by 4% inflation.
**Demonstration pending evaluation

OTHER FEDERAL DEPARTMENTS

		FY 1985 Level	NAHRO Recommendation: FY 1986
1.	Emergency Shelter (FEMA)	$70.8 Million	$72.8 Million
2.	Rural Housing (FmHA)	$3.4 Billion	$3.5 Billion
3.	Economic Development (EDA)	$226 Million	$235 Million
4.	Small Business (SBA) (Direct and Guarantee)	$3,702 Billion	$3,850 Billion

NATIONAL ASSOCIATON OF HOUSING AND REDEVELOPMENT OFFICIALS: APRIL, 1985

PROPOSED UTILIZATION OF BUDGET AUTHORITY FOR HUD-ASSISTED HOUSING, FY 1986

Available Budget Authority

Carryover	$ 892,945,209
Recaptures	859,000,000
New Authority	10,759,482,775*
Total Available Authority	$12,511,427,984

Use of Authority

	Units	Budget Authority
Public and Indian Housing		
New Units - Conventional	6,500	$1,277,640,000
New Units - Indian	2,500	406,560,000
Amendments	NA	82,322,000
Lease djustments	NA	19,200,000
Modernization	NA	1,725,000,000
Sub-Total, Public Housing	9,000	3,510,722,000
Section 8		
Section 202		
New Units	12,000	1,777,440,000
Amendments	NA	150,000,000
Sub-Total, Section 202	12,000	1,927,440,000
Section 8 Existing		
New Units - Regular	75,390	5,478,960,000
New Units - Mod Rehab	5,046	440,110,775
Section 8 Opt-Outs	(1,000)	72,675,000
Public Housing Demolitions	(2,500)	181,687,000
Sub-Total, Section 8 Existing	80,436	6,173,432,775
Existing Project-Based		
Loan Management	(5,000)	84,375,000
Property Disposition	(5,000)	350,100,000
Sub-Total, Existing Project-Based	--	434,475,000
Conversions - Section 23	(1,000)	44,625,000
Amendments		
New/Sub-Rehab	NA	110,000,000
Existing	NA	140,000,000
Loan Management	NA	102,500,000
Property Disposition	NA	20,000,000
Moderate Rehab	NA	48,233,209
		420,733,209
Total, Section 8	92,436	9,000,705,984
Total, Utilization	101,436	$12,511,427,984

*New Budget Authority For FY 1986 Authorized At FY 1985 Freeze Level.
(   ) Already Existing Units
NA = Not Applicable

[From Journal of Housing, vol. 42, No. 2, March/April 1985]

OPINION AND COMMENT

By Beth Carlson, Executive Director, Alexandria, LA, Housing Authority

Bankrupt Policies

The recent HUD regulations for public housing on the changes in rental calculations for tenants (24 CFR PART 913) and the Tenant Allowances for Utilities (24 CFR PART 965) will bankrupt many housing authorities, including the Alexandria Housing Authority which is comprised of 772 public housing units.

Although our rents average only $65.00 per month, we have managed to run this authority without the need of an operating subsidy for the past four years. We've provided more than the required services to the tenants and have taken care of the properties *without costing the government* monies to help us manage it.

Now, with the new rent determination rules which give families greater deductions when calculating rents, we are looking at a loss of approximately $70,000 per year in rent collections. But that's not all. The new regulations also stipulate a rent credit be given to certain tenants depending on when they move in. This will cost us an additional one time loss of approximately $12,500.

The new regulations on Allowances for Utilities for Public Housing are even worse. All 772 of our units have tenant-purchased utilities (except for water, which we pay). Because our average rent has always been low, our utility allowances have always been modest. But when we implement the new mandate, we are looking at another annual loss of approximately $278,000. This brings us to a total annual loss of $348,000, not counting the one time loss of $12,500 for retroactive rents.

Where will this $348,000 come from? Will the Department of Housing and Urban Development grant this amount to us in the form of an operating subsidy? Indeed not! They have already reduced funding of public housing operating subsidies and are attempting to reduce them further!

What will happen next? When this authority completes the recalculations of rents and implements the new utility allowances, most of our residents will be credit renters. That means that every month, instead of their coming to the project offices to pay us their rent, they will be coming in to get their checks from the housing authority for the privilege of living there!

This will bring us to our knees in short time and result in bankruptcy. We will have to reduce our services to the residents. We will no longer be able to rent to low-income people because we will have no funds with which to pay them for living in the projects. The lack of funds for proper maintenance will cause our units to fall into disrepair and become subject to vandalism. We will be forced to close down. Where, then, will the poor people live? This will be happening all over the country. How will the government explain the waste of such an enormous investment?

Inconsistency. A glaring inconsistency concerning the utility allowances lies in the fact that low-income people already are receiving additional help in paying their utilities. The State of Louisiana recently received an $18.7 million Low Income Energy Assistance Grant to assist these families in paying their fuel bills. Three service agencies in Alexandria have received United Way grants for the same purpose.

Housing Authorities were designed to provide housing for low- and moderate-income people, and that we have been doing very well. But the government has forced us into the utility business—which we don't have the expertise to handle. The government has forced us into the position of having to pay people to live in the housing we are providing. The government has forced us into being in violation of Article II, Sec. 201 of The Annual Contributions Contract with the Department of Housing and Urban Development which states:

"The Local Authority shall at all times operate each Project (1) solely for the purpose of providing decent, safe, and sanitary dwellings (including necessary appurtenances thereto) within the financial reach of families of Low Income, (2) in such manner as to promote serviceability, efficiency, economy, and stability, and (3) in such manner as to achieve the economic and social well-being of the tenants thereof" (Sec. 201. Use of Projects).

It would appear that this Administration is waging an all out effort to eliminate public housing by making it impossible for us to carry on. We simply cannot let this happen.

I have been executive director of the Alexandria Housing Authority for 10 years and, with the help of an extremely competent staff, have changed this housing authority from being a burden on everyone to a viable part of our community. Including our 539 units of assisted housing (Section 8), we house over 7 percent of the city's population.

My views have been expressed by hundreds of executive directors.

Let us go back to minimum rents, let us get out of the utility business, let us develop a rent structure compatible with our geographic area that would be affordable by low- and moderate income families and that would also provide the authority the economic stability it must have in order to continue to serve the people.

If we are allowed to do this, Washington won't need to spend time trying to eliminate public housing, but can watch it grow and prosper and better provide for the Americans who need it.

And there is another very big plus factor. The administration might well save hundreds of millions of dollars to help reduce the National Debt because an awful lot of us won't be needing operating subsidies.

STATEMENT OF GORHAM BLACK, MEMBER, PENNSYLVANIA STATE LEGISLATIVE COMMITTEE, ON BEHALF OF AMERICAN ASSOCIATION OF RETIRED PERSONS

Senator Garn. Next I would like to call to the witness table Mr. Gorham Black, member of the Pennsylvania State Legislative Committee.

Please go ahead.

Mr. Black. Good morning, Senator. I am Gorham L. Black, Jr., secretary of aging for the Commonwealth of Pennsylvania from 1979 until my retirement last September. I presently serve as a volunteer member of the Pennsylvania Legislative Committee for the American Association of Retired Persons, and also cochair the National Caucus and Center on Black Aging. Our president, Mr. Simmons, will follow me with testimony on behalf of that organization.

On behalf of AARP, I thank you for this opportunity to testify regarding the fiscal year 1986 HUD-Independent Agencies Appropriations Act. The association's statement will focus primarily on Federal housing programs serving older persons.

Mr. Chairman, our message is simple: the need for decent, affordable and suitable housing for low-income older persons grows more critical everyday. Federal assistance to such persons has been declining since 1979. Under better circumstances, AARP would urge substantial increases in most assisted housing programs, but given the extraordinary pressures of the Federal deficit, we urge only that no cutbacks be made in programs that provide shelter and supportive services to vulnerable older persons.

According to the Congressional Budget Office as of 1981, close to one-half of all very low income elderly households were paying more than 30 percent of their income for shelter. Nearly one in five such households had shelter costs that consumed over 50 percent of their income. In all, 2.2 million elderly-headed households with incomes below or near the poverty line were either living in units that needed rehabilitation, were paying more than one-half of their income for housing or both.

The impact of rising shelter costs on low- and fixed-income older persons has been compounded by tremendous increases in elderly out-of-pocket health care payments. To illustrate, one AARP member wrote, a single woman over 75 years of age—recently wrote, and I quote:

> I need help in obtaining less expensive housing as ~~rent~~ and electric continue to increase. It will be necessary for me to start using savings soon, especially as health deteriorates. . . doctor costs, seeing dentist every 4 months, ophthalmologist every 6 months, and ever-increasing drugs are more and more prohibitive.

Older persons particularly feel the pinch from rent increases when their basic income is frozen. Another single elderly woman wrote to AARP, and again I quote:

> It is about the 6 months' increase in the social security payments which the President impounded. Then to top it off, he failed to give us any protection by freezing our rentals. We gave him 3.5 percent of our increase for 6 months. Nothing stops the rent mongers, however. I have had my rent doubled, which is terribly difficult. . .

Beyond affordability, the issue of housing suitability is one that older persons must increasingly confront as they age. Frail or disabled persons require housing that is designed for safety and incorporates or accomodates supportive services—meals, personal assistance, homemaker chore services, transportation, et cetera—in order to avoid unnecessary or premature institutionalization. This type of housing is developing very slowly relative to demand.

Because the private market lacks incentives to respond to these needs on a large scale, the association believes that a strong, continuing Federal role in assisted housing for low-income older persons is essential.

At present, some 1.5 million units of federally assisted housing are occupied by elderly households. Some 2 million more older households qualify for assistance, but for them, the cupboard is bare. The AARP urges this subcommittee to support an appropriation for HUD-assisted housing that is no lower than the fiscal year 1985 levels.

Section 202 housing for the elderly and handicapped: Section 202 heads the list of federally assisted housing programs for older persons. It provides low-cost, suitably designed housing along with supportive services to foster independent living among older and handicapped residents.

Section 202 is an extremely effective program. Only one foreclosure has occurred in its entire 26-year history. Despite its record of success and integrity, however, section 202 has been reduced year after year. Thus, in fiscal year 1985, only 12,000 units are to be funded, down from over 20,000 units in fiscal year 1979. Decreasing production levels fly in the face of burgeoning demand—existing projects have long waiting lists and most of those waiting will never gain access.

AARP believes the decline in production of section 202 must be arrested immediately. The program should be restored to a level of 14,000 units in fiscal year 1986, and under no circumstances should it be permitted to drop below 12,000 units. We oppose even a temporary moratorium, as any slowdown in production of elderly housing will aggravate the shortage of appropriate shelter with services that already exists. In addition, we urge that the 9¼ percent interest cap on section 202 loans be maintained. This cap is necessary to ensure the continued economic viability of the projects.

CONGREGATE HOUSING SERVICES PROGRAM

AARP also supports continuation of the Congregate Housing Services Program. The number of persons aged 75 and over is growing faster than any other segment of the population, and these are the persons most at risk of institutionalization. Congregate services promote socialization, reduce isolation, and contribute to the improved health and well-being of assisted older persons in section 202 and public housing.

At present, services available in section 202 projects are somewhat limited and fragmented; moreover, most residents of these projects entered them at a time when they were more independent and fewer services were needed. Now, as these individuals age in place, CHSP is needed more than ever. The situation is even more pressing in public housing, where over 600,000 low-income older persons reside.

AARP strongly favors expansion of CHSP, but for fiscal year 1986, in view of budget constraints, we are requesting only $4.1 million to continue the program at current levels.

Public housing operating subsidies: AARP opposes any reduction in public housing operating subsidies. Federal funds to maintain and repair public housing should be increased, not cut back.

As mentioned, the Public Housing Program serves an enormous number of older Americans; in fact, elderly households occupy over 42 percent of all public housing units across the Nation. Also, public housing has the largest impact on minority elderly persons, with over 40 percent of elderly-occupied units being black households, and 8 percent belonging to other minority groups in 1980.

Proposals to cut operating subsidies will thus have a direct and adverse effect on the most vulnerable individuals within the aged population. Substantial reductions in upkeep place elderly residents at greater risk of the crime and safety problems that tend to accompany deteriorating buildings and neighborhoods.

Furthermore, if repairs for units which are currently uninhabitable are not subsidized by the Federal Government, local housing authorities may feel compelled to sell whole projects due to economic infeasibility, thereby reducing the already scarce supply of low-income housing stock.

SECTION 8 EXISTING RENTAL SUBSIDY

AARP recommends continuation of the section 8 existing Rental Subsidy Program at the same level in fiscal year 1986 as in fiscal year 1985. Some 491,000 section 8 certificates are now available to elderly households, including project-based certificates being used for conversion, loan management, and property disposition.

Once again, proposals have been made to convert entirely the section 8 existing program to an expanded voucher program, based on the voucher demonstration now underway. AARP continues to believe that conversion of an established, proven program to what represents an unknown entity would be premature and foolhardy.

The voucher, because it is adjusted only twice within a 5-year term, threatens to exacerbate the excessive rent burden faced even by assisted low-income elderly households. Indeed, the fact that voucher-holders are permitted to spend more than 30 percent of their incomes to live in assisted housing in areas where lower rents are not available effectively legitimizes this burden. The association strongly urges that no more vouchers be issued until a full and careful evaluation of the demonstration has been completed.

SENIOR ENVIRONMENTAL EMPLOYMENT PROGRAM

The association urges the subcommittee to provide a $5 million line item appropriation for the Senior Environment Employment Program to assist States in establishing environmental assistance projects. States would have discretion for the tasks assigned.

This demonstration program would support a wide range of activities, including water supply monitoring, acid rain inventories, ground water inventories, hazardous materials routing survey, water quality sampling and monitoring, and pesticide inventory and control.

These environmental activities lend themselves to employment of mature persons because the tasks are typically short term and temporary in nature. The use of older workers has proven to be a cost-effective means to control environmental pollution because EPA would otherwise be required to hire consultants who would be paid substantially more than the SEE workers.

Alternatively, if it is not possible to obtain a direct line item appropriation, we recommend that there be report language urging EPA to boost funding for SEE.

In closing, I want to assure you that the association is well aware of the tremendous pressures under which you labor. The huge Federal deficits facing this Nation must be restrained and reduced; older persons are fully committed to that goal. That is why, despite ample evidence of the need for substantial increases in spending for housing to assist low-income older persons and others, and despite the hardship that many will experience in the absence of that assistance, we are seeking only level funding or slightly above for these very important programs. We urge this subcommittee to adopt these recommendations for fiscal year 1986.

Senator GARN. Mr. Black, thank you very much for a comprehensive statement. We appreciate your willingness to be here.

Mr. BLACK. Thank you, sir.

Senator GARN. Senator D'Amato?

Senator D'AMATO. Thank you very much, Mr. Chairman.

Mr. Chairman, I am pleased to join you for today's public hearings and commend the witnesses and their testimony. I would like to submit for the record my statement as if read.

Senator GARN. That will be included in full.

Senator D'AMATO. Thank you, Mr. Chairman.

[The statement follows:]

STATEMENT OF SENATOR D'AMATO

Mr. Chairman, I am pleased to join you today for public witness testimony. Also, I would like to commend these fine participants for taking the time to share their comments on Federal agencies under the jurisdiction of this subcommittee, including the U.S. Department of Housing and Urban Development, the National Science Foundation, and the National Aeronautics and Space Administration.

It is unrealistic to assume that our communities are no longer in need of programs under the jurisdiction of HUD and the Farmers Home Administration. The Federal Government must continue to maintain housing and urban revitalization as one of its highest priorities.

The Urban Development Action Grant (UDAG) Program, administered by the Department of Housing and Urban Development, is a perfect example of a Federal program that helps our communities and that should be continued. It demonstrates that jobs can be created and that revenues can be generated to enhance the development of our communities. It is a perfect example of a great public private partnership.

Although there has been some controversy regarding UDAG selection criteria, we are making progress toward resolving this matter. There was concern about the relative weight given to economic impaction, distress, and project specific measures. The resolution to this problem involves the funding of all UDAG eligible cities. At present, 30 percent of the composite project grant is determined by project quality, including private investment, leverage, and the number of jobs created. Thirty percent of the points are linked to applicant distress, based on per capita income, unemployment, and job/lag decline. And 40 percent is determined by the applicant's impaction, which is based on pre-1940 housing.

In recognition of the national need for this important program, I have asked my colleagues in the Senate to join me in considering the proposals to change the UDAG program, especially the option known as the "two pot" system. Under this proposal, a portion of the funds would be provided using the current formula. The other pot of funds would be provided solely on the basis of project specific measures.

I firmly believe that our communities are deserving of the Urban Development Action Grant Program. The Urban Development Action Grant Program has helped create more than 479,170 new permanent jobs, 467,000 construction jobs, and has helped retain over 120,000 jobs. UDAG's have created at least $20 billion in private investments. As a result of this program, an additional $521 million has been raised in property taxes and other local taxes. UDAG's have assisted in more than 2,400 development projects in over 1,084 cities. Our communities must be encouraged to continue to carry out economic development activities vital for U.S. growth and prosperity. The UDAG success stories of our communities should not end.

Mr. Chairman, the conditions that gave rise to the need for the Farmers Home Administration in 1949 also still exist. We need the continuation of rural housing programs that serve families and the elderly who are unable to obtain credit from private lenders. It provides growth to the economy. Every Farmers Home Administration unit creates 1.4 man-years of employment. The projected 60,000 units to be built this year would produce $1 billion in taxes and wages.

It is well known that HUD is unfamiliar with the housing programs of the Farmers Home Administration. Therefore, I am concerned about the effects of a transfer of the Farmers Home Administration to the Department. At present, Farmers Home includes 1,930 county offices, 270 district offices, and 46 State offices. Are we to suggest that families needing assistance should travel up to 400 miles to reach a HUD field office? I should hope not.

The Federal role in housing must continue. The Federal Government should take an active, advocacy role in housing development and rehabilitation that is cognizant of the needs of our citizenry.

We must continue our commitment to many of the programs of NASA and NSF.

The Space Science Program of NASA is of vital importance to our Nation's role as a leader in space science and research. The Space Science Program should continue to expand; we should not jeopardize new starts such as the International Solar Terrestrial Program (ISTP), the Advanced X-Ray Astrophysics Facility (AXAF), and the Space Infrared Telescope Facility (SIRTF). These and other programs of NASA are an integral part of U.S. technological growth and development. These programs are key elements to our leadership, prestige, and credibility in space science.

As stated by the American Institute of Aeronautics and Astronautics, the space station is to speed the process of discovery and invention with a permanent facility in the unique conditions of space. This station will have tremendous technological, as well as practical benefits. Many scientific studies not now possible on Earth could be conducted on a space station. Telescopes could scan the universe without interference from the Earth's atmosphere and without the limited time constraints of space shuttle flights. The station could be used as a base to repair communication, weather, and other satellites without the expenses of launching a crew from Earth.

The continued promotion of math and science education is also an integral part of maintaining U.S. scientific and technological strength. We must develop an organized, concerted effort to encourage math and science education; advances in science education help us maintain our Nation's technological edge in the international marketplace, as well as produce scientists capable of continued scientific advancements. The Math and Science Program and the College Science Instrumentation Program are examples of programs within NSF that should be continued and further developed. Our Nation's children are in need of technical training in the sciences that will prepare them for scientific discoveries of tomorrow.

Thank you, Mr. Chairman.

STATEMENT OF SAMUEL J. SIMMONS, PRESIDENT, THE NATIONAL CAUCUS AND CENTER ON BLACK AGED, INC.

ACCOMPANIED BY DAVID A. AFFELDT, GENERAL COUNSEL, NATIONAL CAUCUS AND CENTER ON BLACK AGED, INC.

Senator GARN. Next if I could call up Mr. Samuel J. Simmons, president of the National Caucus and Center on Black Aged, Inc.

Mr. Simmons, if you would excuse me, we are going to play musical chairmen here so we can get to our various responsibilities. Senator Johnston will be here to listen to your testimony. Thank you very much for coming.

Mr. SIMMONS. Thank you, Mr. Chairman. The National Caucus and Center of Black Aged appreciates the opportunity to testify here at this hearing. I have with me today our general counsel, Mr. David Affeldt. We fully recognize your time is limited. Consequently, we shall make a brief statement.

At the outset, NCBA urges the subcommittee to reject the administration's proposal to eliminate funding for all new housing and practically all other housing assistance. This would inflict a crippling blow to elderly blacks and other older Americans who need suitable and appropriate housing.

Quite clearly, it may be necessary to set our housing goals lower in view of the budget realities. But this can be achieved without amputating programs for the low-income elderly who are dependent upon federally assisted housing.

The private sector has generally not been responsive to the needs of the deprived population. Without federally assisted housing, older blacks and other low-income aged persons will be in dire straits in meeting their housing needs. The message is that simple.

FOUR KEY PROPOSALS

NCBA has four key proposals which I would like to discuss briefly with the subcommittee.

First, there should be sufficient lending authority to maintain the section 202 Housing for the Elderly and Handicapped Program at its current level—now estimated at about 11,600 units.

We strongly urge the subcommittee to reject any proposals to impose a moratorium on new housing construction or substantial rehabilitation of section 202 units. Aged blacks and other low-income older persons have a critical need for section 202 housing and other federally assisted housing. They cannot afford a 1-year moratorium.

Section 202, as you heard several times this morning, has been one of the most effective programs ever enacted. It has provided quality and affordable housing tailor made for older Americans.

Its value and worth have been amply demonstrated over the years. In short, section 202 is a program that deserves to be continued.

The need for section 202 housing is clearly much greater than 11,600 units per year. But, we are recommending this modest level because of the huge budget deficits.

I would also like to make one further point about section 202 housing. The program has already experienced a 41-percent reduction, from 20,444 units in fiscal year 1979 to an estimated 11,600 this year.

Additionally, NCBA urges the subcommittee to incorporate report language again to encourage HUD to continue its efforts to promote more minority sponsorship of section 202 projects. Earlier report language produced positive results in stimulating minority sponsorship of section 202 housing. Further language is needed to assure that this is not short-lived action.

Minority organizations have historically been underrepresented in the section 202 program for a variety of reasons. However, they have much to offer, especially in meeting the needs of the minority aged and other low-income older persons.

Second, NCBA recommends that public housing and section 8 assistance be continued at their current levels. Section 8 is absolutely essential for section 202 housing. It is crucial that these two programs work in tandem because many aged blacks and other low-income older Americans need section 8 assistance to pay the rent for a section 202 project.

Our Nation's response to the housing needs of the elderly must include an appropriate mix, including public housing, section 8 assistance, and section 202 housing for the elderly and handicapped. Public housing is especially important because older blacks constitute a significant proportion of all tenants in these units. In fact, public housing provides more housing for aged blacks than all other programs.

For these reasons, we reaffirm that funding for public housing should be continued, at a minimum, at the current levels.

Third, NCBA favors continuing funding for the Congregate Housing Services Program at its current level—$4.1 million. This modest appropriation will fund a program which is both humane and economical for our Nation. Funds committed for congregate housing services can provide a significant financial dividend by preventing costly premature or unnecessary institutionalization.

This point cannot be understated since many older Americans now wind up in nursing homes because alternative living arrangements or appropriate alternative forms of care are not available. Leading authorities estimate that 25 to 40 percent of the nursing home residents do not need full institutional care, but simply require supportive services, such as meals, homemaker services, or personal care assistance.

We know a great need exists for congregate housing because the 75-plus age group is one of the fastest growing segments of our population. This older population runs a far greater risk of being institutionalized than any other groups in our society. But they can continue to live independently in their communities if we respond with an appropriate and timely services and housing strategy to meet their special needs.

Finally, NCBA recommends that the subcommittee provide a line item appropriation for the recently enacted Senior Environmental Employment Program, otherwise known as SEE. We recommend that $5 million be provided from existing EPA funds to implement this initiative.

This is a modest level, especially when measured against the need. The proposal can pay big dividends for our Nation, the communities served, and the older Americans who participate in the program. This activity would provide new opportunities for older workers to engage in gainful employment. At the same time, it would deliver numerous valuable services to improve our environment, including monitoring the water supply, taking inventories on acid rain, and other important activities.

The SEE Program had broad support when it was enacted into law. It should be funded to carry out the mission that the Congress intended.

NCBA fully recognizes the need for belt tightening when dealing with the Federal budget. However, the fiscal year 1986 budget must also be humane and responsive to human needs. We believe we have offered proposals to achieve these objectives, and we urge your support of these measures.

It is a pleasure to be here with you this morning.

Senator JOHNSTON [presiding]. Thank you. We received testimony on the long waiting lists on public housing lists. Do you have similar statistics on section 202 waiting lists?

Mr. SIMMONS. No, not in the form of a report. I can just talk from the standpoint of we, for example, on the 202, congregate housing facility here in Washington, DC, it has 175 units. When it opened up some 2 years ago, we had 2,000 people on the waiting list, and we have culled that down to where we have approximately 500 people on the waiting list at the present time. We have some five 202 housing projects scattered throughout the country, and we find the same thing in every place, that you can rent the building up three or four times if you had the facilities available.

Senator JOHNSTON. Thank you.

STATEMENT OF JOHN PHILIPS, THE AMERICAN INSTITUTE OF ARCHITECTS

ACCOMPANIED BY ALBERT C. EISENBERG, DIRECTOR, GOVERNMENT AFFAIRS, THE AMERICAN INSTITUTE OF ARCHITECTS

Senator JOHNSTON. Next we are happy to have John Philips from the American Institute of Architects.

Mr. PHILIPS. I am accompanied by Al Eisenberg, director of government affairs.

Mr. Chairman and members of the subcommittee, my name is John Philips. I am chairman of the housing committee for The American Institute of Architects, the professional association which represents this Nation's architects. I am a principal in the architectural firm of Treby, Howard, Philips of Allentown, Pa., and am representing today the AIA's views on housing and community development programs.

I would like to concentrate my verbal remarks on two programs—the Urban Development Action Grant Program and the Rental Housing Development Program; UDAG and HoDAG, respectively. Both programs would be terminated under the administration's fiscal year 1986 recommendations.

As the designers of the Nation's housing and community development projects, we know from first-hand experience the value of these programs, and urge that they be maintained at the $440 million in the case of UDAG and $300 million in the case of HoDAG. Both amounts would constitute a freeze on spending.

UDAG and HoDAG embody important principles endorsed by the administration. Both programs fulfill the legitimate role of government to provide a catalyst for private investment in communities that have great difficulty attracting such investment unaided. Because both programs target funds to the neediest communities and select projects on a competitive basis, they efficiently use Federal resources. They require private commitments of funds and uphold the concept of public/private partnerships in solving national problems. Both programs also rely upon the creativity and initiative of local government and business to tailor projects to local needs and circumstances.

UDAG is an urban success story. The facts counter the administration's attempts to malign a program it has supported up to now. According to HUD, the program by latest count has created and preserved as many as 600,000 jobs, constructed or rehabilitated almost 100,000 housing units, and generated over $21 billion in private investment.

A General Accounting Office study released last year indicated program performance in these areas actually exceeds HUD's initial estimates. Citing a 1981 HUD study, HUD Secretary Samuel Pierce declared that UDAG is "an effective Federal program that is accomplishing its mission."

HUD has further defended the program in previous years stating that, "UDAG makes maximum use of private investment to create new capital expenditures, create new private jobs, increase tax revenues, provide repayments for local governments to assist in funding other development opportunities, and to assist in economic recovery."

UDAG has contributed significantly to deficit reduction over the past 4 years, declining by a third from its 1981 fiscal year funding level. Between 1981 and 1985, UDAG received $945 million less than it would have it its appropriation had remained constant at the fiscal year 1981 level.

The AIA supports $300 million for extension of the HoDAG Program, which would permit somewhat less than 16,000 new and substantially rehabilitated units of multifamily rental housing. These funds should come from the $655 million that would otherwise be available for housing vouchers for fiscal year 1986 if housing assistance programs were funded at their fiscal year 1985 appropriation level.

HoDAG is a supply program. It recognizes that some communities suffer severe shortages of rental housing, a factor attested to on several occasions by HUD Secretary. HUD estimates that about 1,600 large and small localities fall into this category. We know that many low-income renters cannot find suitable housing, even though they have section 8 certificates to help them pay the rent. In fact, in 1983 one-third of those who held section 8 certificates could not find suitable, affordable shelter.

In the cities HoDAG is designed to serve, rental development has apparently come to a standstill. Without the kind of assistance HoDAG offers, the supply in these localities will continue to tighten, squeezing housing opportunities still further and deepening the consequences of housing shortages—overcrowding, homelessness, high housing costs, and neighborhood decline.

HoDAG is a program that applies well the lessons learned from the past. It was designed to aid new construction of rental housing without relying upon the long-term, high-cost assistance obligations that undermined the section 8 program. It accomplishes this purpose by providing the assistance up front and by directing its funds to the development cost, rather than to the rental cost.

The Federal Government must take a balanced approach to fulfillment of its housing responsibility, aiming at the problems of affordability, supply shortages and deterioration through rental assistance, production and rehabilitation programs. The HoDAG Program represents an important piece of this balanced approach.

Mr. Chairman, that concludes my testimony. I would be happy to answer any questions you may have.

Senator JOHNSTON. Thank you very much, Mr. Philips. What do you say to the argument that the HoDAG Program is not well targeted toward the most needy?

Mr. PHILIPS. Because it requires 20 percent, it is targeted to and requires 20 percent units be allocated for low-income housing. That is why it does not target and provide the greatest extending relationship to low-income families.

Mr. EISENBERG. Mr. Chairman, let me add to that. The program is a supply program. In those communities that this program serves, you have a problem in rental housing for low-income and moderate-income groups. The program is designed, in fact, to expand that supply and thereby aid all of them and find rental housing to one degree or another.

Now, by constructing, that is what it does, it frees up that market to a greater extent. There is a price for securing the subsidy for the entire project. The project is required to have a portion of its units set aside for low- or moderate-income people. So by aiding the market in general and by providing new and substantially rehabilitated units specifically to low- and moderate-income tenants and within the particular project, you do, in fact, aid low-income people overall. Without that program, as we say, the market would be so tight, is so tight in those communities that there is great difficulty and great problems resulting.

Senator JOHNSTON. Thank you very much.

STATEMENT OF WILLIAM D. NORTH, SENIOR VICE PRESIDENT AND GENERAL COUNSEL, NATIONAL ASSOCIATION OF REALTORS

Senator JOHNSTON. Next we would like to welcome Mr. William D. North, senior vice president and general counsel of the National Association of Realtors.

Mr. NORTH. Thank you very much. It is a pleasure to appear before this committee. You have been provided with our detailed statement which details our opposition to the $10 million appropriations for the so-called Fair Housing Initiatives Program. Rather than read that statement to the subcommittee, I would like to highlight certain of our concerns.

Mr. NORTH. First, we want to make it very clear NAR is not opposed to testing, but it is vigorously opposed to the unsupervised, unstandardized subjective and arbitrary program which the HUD proposal or appropriation proposes to finance. The bulk of the appropriation would be used to finance Sting and Abscam-type tests of fair housing compliance. These Sting operations would be conducted, not by responsible and trained law enforcement agencies, but rather by private so-called fair housing groups. These groups, in our view, have neither the objectivity nor the competence to be designated an enforcement arm of the Federal Government and, in fact, many of these groups are in active commercial competition with our members and other members of the real estate firms they would be testing.

Second, recently, in fact last week, a senior HUD official stated in Chicago that a significant portion would be allocated to a lawyer's revolving fund to pay lawyers bringing suits on the basis of the testing accomplished. We suggest among the unemployed and underemployed occupations, lawyers are probably the least in need of Federal subsidy. This is especially true when currently lawyers commonly accept housing cases on contingency and are entitled to recover their fees when they are successful.

In this connection, I would note that the defendant who establishes his innocence must, nevertheless, at the present time, bear all of the costs of his defense.

Senator JOHNSTON. Can you tell me how that schedule worked, that $10 million fund?

Mr. NORTH. The bulk of it—it has not been precisely broken down, to the best of our information. Our understanding is approximately $8 million will go to the funding of these types of testing programs.

Senator JOHNSTON. I know. How do the testing programs work? They give money——

Mr. NORTH [interposing]. They give grants to the various organizations, fair housing organizations, who will then undertake to organize and operate a testing program within a given community or a given metropolitan area. I don't know how the lawyers' revolving fund would work. In fact, we were quite surprised that this was part of the proposal when we heard it last week in Chicago.

Senator JOHNSTON. They make a grant to a group and what does the group do with the money?

Mr. NORTH. The group then is supposed to hire testers and hire evaluators and put those testers out into the community to see the extent to which there is discrimination in housing and then the results of those testers are to be evaluated and then as appropriate, suits are to be filed or conciliated.

Senator JOHNSTON. The tester applies for a home?

Mr. NORTH. He applies for a home or applies for an apartment, and there will be a black tester and a white tester then, depending on how they are described demographically by age, family, educational background, employment. There is an effort made to identify whether they receive comparable treatment.

One of the critical problems in the testing programs that have been conducted to date not only by private groups but also by HUD itself in some of its experiments is that the testing programs do not involve testing the same salesperson; they involve testing two different salespeople in the same office with the result that since salespeople do conduct themselves differently, it is and has occurred that for entirely nondiscriminatory reasons, you have different performance types.

The object example in this connection was a case where HUD in its investigation some years back conducted by Peat Marwick and Mitchell identified a case of discrimination, differential treatment, which when we tracked it down seems to have appeared as the result of the fact in one case, the tester contacted a Mormon who did not drink, smoke, and was quite formal in his dealings with his clients, and another tester encountered a different salesperson who did all of those and the differential in their conduct involved trickery, an example, but this is what we encountered.

The difficulty in that connection, however, is that it produces a law suit and a law suit can produce very serious costs for the industry.

We are concerned particularly that this appropriation is a Federal endorsement of vigilanteism and really legalized bounty hunting, and coming in the wake of the *Goetz* case in New York, it seems to us to be an invitation to some pretty serious self-help programs.

For nearly 3 years we have been subject to the most rigorous testing programs in the field. And in our view, these tests are not designed legitimately to verify suggested discrimination, but to involve generalized sweeps and entrapments and, moreover, the threat of testing has been used widely to induce contributions to and purchases from fair housing groups.

In the Chicago area, for example, one testing organization gave the board, the Real Estate Board, the opportunity to hire the testing organization, to educate it for a mere $50,000 a year. In another case, a testing organization offered to educate the real estate firms, primarily $5,000 per firm.

Another point I think that has to be made is a program to test with compliance of the fair housing law should not be implemented by HUD as long as it cannot determine what conduct the fair housing law requires and this, I suppose, is our greatest concern. We have been told unequivocally by the Civil Rights Division of the Department of Justice, for example, that all racial steering is illegal and yet HUD's General Counsel, on the other hand, is on record as recognizing steering as good, as bad, depending on whether it supports integration. But as this subcommittee knows, the issue of whether or not integration is a mandate of the fair housing law is very much up in the air as a result of the Starrett City controversy, and HUD and the Civil Rights Division has had some dispute over the application of the concept of integration maintenance in that area.

We have been told, for example, by the Civil Rights Division, that all redlining in real estate financing is illegal, and this come in the face of the fact that HUD is currently party to one of the largest redlining programs in the country in Chicago, and the Veterans Administration is even now being sued for refusing to participate in that program.

We have been told that the fair housing law applies equally to all, but HUD's General Counsel has held—and this is in a letter which is on record, and which we have requested be withdrawn and has not been withdrawn—the General Counsel has held that conduct which would be illegal if engaged in by real estate brokers is entirely legal if engaged in a not-for-profit housing group, and we have repeatedly requested and been refused clarification of the law and the elimination of double standards in its enforcement.

We strongly urge that before HUD sponsors a test, it should be able to tell us what the correct answers to that test will be. And, finally, this appropriation, in our view, represents a substantial repudiation of the concept of public/private partnership and voluntary compliance which is characterized about the last 10 years of the relationship between HUD and the industry.

This was the original thrust of title VIII and a recognition that we had to change peoples' attitudes and habits more than we should coerce them. Never has HUD sought an appropriation of this size to support programs of voluntary compliance. The Community Housing Resources Board, created by agreement between HUD and other private industry associations, have not been supported, and HUD even came to us about a month ago seeking money to pay for billboards to promote its own Fair Housing Month Programs.

We believe very sincerely that this appropriation is not justified, is not fair, and will be counterproductive to the goals of fair housing. It is really and truly a bounty, a Federal bounty on the head of every real estate broker and salesperson and, more particularly, on the head of every private citizen who undertakes to sell or buy a home and who is targeted for testing and the private citizens are targeted for testing under this program.

I would be pleased to respond to any questions.

Senator JOHNSTON. Thank you very much, Mr. North. I have no further questions.

[The statement follows:]

STATEMENT OF WILLIAM D. NORTH, SENIOR VICE PRESIDENT AND GENERAL COUNSEL, NATIONAL ASSOCIATION OF REALTORS

I am William D. North, a Senior Vice President of and General Counsel to the NATIONAL ASSOCIATION OF REALTORS®. On behalf of the more than 675,000 members of the National Association, we greatly appreciate the opportunity to testify before the Senate Subcommittee on HUD-Independent Agencies of the Committee on Appropriations. We are pleased to respond to this Subcommittee's request for our views on the HUD Appropriations Bill.

THE NATIONAL ASSOCIATION OF REALTORS® URGES THAT THIS SUBCOMMITTEE REFUSE TO APPROPRIATE $10 MILLION FOR A NEWLY PROPOSED HUD FAIR HOUSING INITIATIVES PROGRAM (FHIP), A LARGE PORTION OF WHICH SUPPORTS THE "TESTING" OF OUR MEMBERS, AT A TIME WHEN THE ENFORCEMENT OBJECTIVES IN THE LAW UNDER WHICH THEY ARE BEING TESTED REMAIN UNCLEAR AND UNIFORM AND OBJECTIVE TESTING STANDARDS ARE NON-EXISTENT.

FAIR HOUSING INITIATIVES PROGRAM

In its 1986 budget request, HUD seeks to supplement existing Departmental fair housing efforts with a new program entitled the Fair Housing Initiatives Program (FHIP). In HUD's words, this new program would provide the means to assist projects and activities designed to enhance compliance with the Federal Fair Housing Law and the laws of those states or local municipalities which have rights and remedies that are "substantially equivalent" to those at the federal level.

Title VIII of the Civil Rights Act of 1968 prohibits discrimination on the basis of race, sex, color, religion, or national origin in the sale, rental, provision of brokerage services, or financing of housing. HUD is seeking $10 million to fund this program.

HUD's new program seeks authority to make grants or enter into contracts with state or local governments and public or private organizations that are formulating or carrying out programs to prevent or eliminate discriminatory housing practices. And the Department contemplates providing funding for three distinct categories or "initiatives" under FHIP:

- Administrative Enforcement
- Private Enforcement
- Education and Outreach

CONFUSION IN THE LAW

The Association's concern with HUD's effort through this Program to "privatize" fair housing law enforcement is a critical one because there presently exists throughout the nation a fundamental dispute as to what "fair housing" means.

This dispute rages within and among minority groups such as the NAACP and Urban League, within and among civil rights groups such as the U.S. Commission on Civil Rights and the National Committee Against Discrimination in Housing, within and between communities and even within and between agencies of the Federal Government.

For over seven years now, the National Association has repeatedly requested this Congress, HUD and the Civil Rights Division to clarify whether the objective of fair housing established as the goal of Title VIII requires:

- "equal opportunity in housing" or "integrated housing"
- "no discrimination" or "some discrimination"
- "no discrimination by citizens" or "systematic discrimination by government or government sponsored groups."

It is no secret that HUD has long been a supporter of "quota" programs and racial mix "goals" in support of integration even when those programs limit freedom of housing choice. Popularly known as "integration maintenance" programs, the Starrett City project in New York is but the most recent example of this HUD perspective.

In its Budget message to Congress this year, the Reagan Administration clearly showed its opposition to the use of quotas based on race and other classes of individuals when it stated that, despite federal anti-discriminatory statutes, "decisions affecting...who shall be permitted to live or continue to live, in...housing...continue to be made on the basis of race, national origin, or sex...not the qualifications and needs of individuals. And, too frequently, such discrimination occurs not despite of, but in asserted compliance with, the very constitutional and statutory mandates designed to make color, or sex, or national origin irrelevant." The Administration criticized the use of quotas which "institutionalized the making of distinctions on the basis of race and sex" and which "accustom us as a nation to think in terms of group, not individual, entitlements" and it noted that ultimately "quotas rarely benefit the poorest, the most unskilled, the most economically hopeless."

Of equal concern from the standpoint of this Budget request is the fact that at this very moment official HUD policy prescribes a double standard of conduct under the fair housing laws. The HUD General Counsel has expressly held that racial steering which would constitute violations of Title VIII if done by real estate brokers would be entirely legal if done by private or community fair housing groups--the very groups HUD now proposes to designate to enforce the fair housing laws.

Thus, there are very fundamental policy and procedural decisions which must be made by HUD, the Department of Justice and even by this Congress before any Program of the type proposed by HUD to localize and privatize fair housing enforcement should be put in place.

The safeguards against abuse represented by the requirement of substantial equivalency of fair housing laws is illusory since, as every real estate broker knows, equivalency in law is not necessarily or even probably equivalency in fact or in implementation.

INVESTIGATION BY TESTING

While the Initiatives Program seeks to justify itself as an enforcement effort, it is in fact a gross and irresponsible delegation of enforcement responsibility to private groups and communities which have neither the competence nor the objectivity required to properly and fairly enforce the law.

The Initiatives Program represents, in our opinion, a substantial if not total abdication of the investigative and enforcement responsibility assigned by this Congress to HUD. And, in our view, the evil of this abdication is compounded by HUD's absolute failure and refusal to establish responsible and professional standards by which the testing contemplated by the Program will be conducted, the standards of conduct which the tests will attempt to measure and the criteria by which the presence or absence of illegal discrimination will be evaluated.

The National Association is not opposed to testing but it is vigorously opposed to the unsupervised, unstandardized, subjective, and arbitrary testing program which HUD proposes this Congress finance. This Program contemplates nothing less than the creation of a body of private and community vigilantes vested with a license to harass, coerce and even destroy legitimate real estate practitioners in the name of Fair Housing Testing.

Our concerns with HUD's persistent desire to "privatize" fair housing enforcement is not new. For years, the National Association has repeatedly requested HUD to develop and publish guidelines, standards and criteria for testing, testers and test evaluators and HUD has frequently and adamantly refused to do so.

If testing is to be fair and effective, it must be uniform, unbiased, professional, and consistent. The testers must be legally liable for misconduct and should not be provided with an incentive to find discrimination.

If testing is to be anything other than an instrument of legalized extortion and harassment, there must be a single standard of conduct by which legality is measured which does not vary according to the person or business tested or the community or the nature of the transaction.

We oppose the Fair Housing Initiatives Program because it cannot help but become an instrument of oppression, abuse and discrimination in the present state of the law and HUD policy and practice.

Mr. Chairman, in conclusion, I want to thank you again for giving me the opportunity to express the Association's position on the Fair Housing Initiatives Program.

I will be happy to answer any questions that you may have. Thank you.

STATEMENT OF THOMAS PERKINS, PRESIDENT, LOUISIANA ASSOCIATION OF HOMES FOR THE AGING, ON BEHALF OF THE AMERICAN ASSOCIATION OF HOMES FOR THE AGING

Senator JOHNSTON. Next we want to welcome Mr. Thomas Perkins who is president of the Louisiana Association of Homes for the Aging.

Mr. Perkins, we are very pleased to have you here today. We have worked very closely with you over a number of years and you have done an excellent job down in Louisiana. I know the archbishop thinks a great deal of you too with the work you have done with the Catholic Charities. Welcome to the committee.

Mr. PERKINS. Thank you, Mr. Chairman.

Mr. Chairman, members of the subcommittee, again my name is Thomas Perkins. I am executive director of Christopher Homes, Inc., which is the trade name of the Archdiocese, New Orleans Housing Development Program. That corporation owns and operates some 15 nonprofit housing facilities for the elderly in Louisiana.

I also serve as president of the Louisiana Association of Homes for the Aging and as a member of the housing committee of the American Association of Homes for the Aging.

AAHA is the national representative providing health care and other support services to older Americans. I thank you for the opportunity to testify today on behalf of the association and to express our concern that Congress maintain its role in assuring that our older citizens are properly housed.

Looking first just at some numbers, the need for suitable housing for the elderly is tremendous. In the past three decades, Americans over age 65 have doubled, and by the year 2025, this population will be more than doubled again. With one out of every five Americans being over age 65 and individuals 85 and older, a group requiring higher levels of support will increase sevenfold by 2030.

To keep pace with the resulting demand for housing, one recent study conducted under the auspices of the University of Michigan estimates that at least 235,000 new elderly housing units are needed to be constructed each year through the end of this century. Finding affordable housing is extremely difficult for numerous older Americans whose incomes fall near or below the Federal poverty guidelines.

Three and a half million elderly households have annual incomes of less than $5,000. But note only one out of seven receive some form of governmental housing assistance. HUD itself has determined that nearly one in five elderly households live in inadequate housing due to either substandard conditions or rent payments which exceed 50 percent of their income.

A fast growing subgroup of the elderly persons are women, the very old and persons living alone. Coincidentally, these groups are among those with the highest poverty rate. For instance, elderly black women living alone are more than four times as likely to fall below the poverty level as the overall elderly population.

The private housing market has not kept pace for the demand of affordable housing to address the physical, financial, and social needs of a great majority of American elderly. Federal programs have been the major vehicle for the meeting of the specialized hosuing needs of the older Americans. Such programs in section 292 housing for the elderly and handicapped have been available to some but on a very limited scale.

Only one-half million elderly households, only one out of every seven elderly households, living below the poverty line receive housing assistance under Federal programs. Typically, the waiting programs for assisted facilities average 3 to 4 years.

In our own community, even with the tremendous strides the archdiocese has made, the average waiting time is about 2 years, and depending on the locale of the facility, it could go as much as 4 years.

Some of our people who are applying at age 62 will certainly never be admitted because of the fact the longevity of their life withers and the fact that living conditions is such that it is really promoting a healthier long live.

Despite a clearly established need, Federal housing assistance for low-income elderly has been dramatically cut in recent years. Therefore, the American Association of Homes for the Aging advocate the following:

Congress should oppose any attempts to eliminate even temporary funding for new assisted housing units. This subcommittee should provide full funding for section 202 housing for the elderly and the handicapped.

AAHA is further recommending that Congress authorize 14,000 additional 202 units in fiscal year 1986.

That Congress should retain and expand the Congregate Housing Services Program enabling the nonprofit sponsors to continue providing support services such as meals, housekeeping, transportation, all which are necessary for the frail elderly to retain its independent lifestyle and avoid premature institutionalization.

In legislation, Congress should specify that the interest rate for section 202 be set at 9.25 percent as has been done in the past several years.

So continued participation by the nonprofit sponsor remains financially feasible.

The subcommittee should resist any pressure to shift funds from operating effective programs, such as 202 housing, to other projects, demonstration programs that HUD may oppose or even refuse to administer.

We further recommend Farmers Home Administration Rural Housing Program must be maintained and should be funded at at least the fiscal year 1985 levels to meet both existing and accommodate future demand. Elimination of the Farmers Home Administration Rural Housing as proposed in fiscal year 1986 will have a major impact on the availability of housing assistance, communities traditionally served by HUD programs.

The committee should call for a thorough evaluation of vouchers before major funding is committed to this approach. The committee should ensure that the section 8 existing and modern rehabilitation programs as well as public housing operating subsidies and modernization programs are funded at least through the fiscal year 1985 levels.

Mr. Chairman, in conclusion, AAHA strongly urges continued and expanded Federal involvement providing housing for the elderly. Without broad housing choices, the elderly will continue to be forced into inadequate housing or be inappropriately placed in higher costing care facilities.

The Federal Government must remain active as a partner with the nonprofit community and a broad private section in providing affordable housing designed to meet the unique needs of older Americans.

We are delighted that the committee has seen fit to hear our testimony. We are delighted to say to you also that the local HUD office has been very, very instrumental, and the congressional delegation, to do the effective job we like to believe we have done in providing housing for the elderly.

Senator JOHNSTON. Thank you very much, Mr. Perkins. The Congress appropriated $4.2 million in the current fiscal year to continue the Congregate Housing Services Program. Do you believe this is sufficient to maintain the program next year?

Mr. PERKINS. We believe that that number is sufficient to keep the program going. We feel it has tremendous impact and it certainly delays the institutionalization of our elderly. We note that when people are unable to take proper medication, whatever, they are still very active and independent people, but then they are forced into the situation where there is no independence.

Just with the little housing that is provided in the congregate services could prolong the stay of independent living conditions.

Senator JOHNSTON. As you know, the Appropriations Committee has written into its annual funding legislation the cap on interest rates of 9.25 percent for section 202 housing loans.

The Department of HUD has again requested removal of this cap and indicated that that would result in about a 1.5 percent increase in the interest rate paid by section 202 sponsors.

What impact do you feel such an increase will have on the program?

Mr. PERKINS. It will have major impact with respect to the fair market rents that we now are faced with and to increase that cap and make it almost impossible to continue to do the job they have done in the past.

We strongly urge the 9.25 cap remain in place and, if possible, make a statutory arrangement so that nonprofit can continue to do the job to give the dedicated services and do the things for the elderly population which are so extremely appreciative of the things that are going on that make their life a whole lot more secure and comfortable.

Senator JOHNSTON. Thank you very much, Mr. Perkins.

Senator Lautenberg has requested he be able to chair the next two witnesses who, I believe, are from New Jersey. So if you will just wait in place for a few moments, Senator Lautenberg will be here in a few moments.

[A brief recess was taken.]

STATEMENT OF FEATHER O'CONNOR, EXECUTIVE DIRECTOR, NEW JERSEY HOUSING AND MORTGAGE FINANCE AGENCY AND VICE PRESIDENT, COUNCIL OF STATE HOUSING AGENCIES

Senator LAUTENBERG [presiding]. We will call the subcommittee for HUD and Independent Agencies Appropriations to order, and I would ask Feather O'Connor, the executive director of the New Jersey Housing and Mortgage Finance Agency and Vice President of the Council of State Housing Agencies to come forward.

I welcome you. Sorry we got started so late. The advantage of that, Ms. O'Connor, is you get to do it in very short form, if you can.

We will take your full statement and submit it for the record, if you choose to do that.

Ms. O'CONNOR. I am delighted to be here, and especially pleased you were available to chair the meeting during my presentation.

Senator Lautenberg. That makes two of us. I love being a chairman. That's an aspiration. [Laughter.]

Ms. O'CONNOR. I am here in somewhat a dual role. You already introduced me as director of Housing and Mortgage Finance Agency. I should add, I was with HUD for 11 years. I am here in my capacity as vice president of the Council of State Housing Agencies.

We represent 57 State-chartered housing finance agencies which include the New York City Housing Development Corporation and Housing Finance Agencies in Puerto Rico, the Virgin Islands, and the District of Columbia. As a group, we finance 572,000 single-family home purchases and financed 675,000 units of rental housing across the country. We are very unique institutions.

We evolved over the last 15 years into a very important production tool for assisted housing. New Jersey has been one of the leaders, and I am pleased to present our record to you of 13,000 units of 236 rental housing; 16,000 units of section 8 that we monitor ourselves each year; 44,000 units of purchases of existing housing and home improvement loans throughout the State.

This year we plan to finance the construction and rehabilitation of over 2,500 units of rental housing and something like 10,000 units of home purchases which we are reserving primarily for households with incomes below 80 percent median in response to the congressional mandate to serve lower income households first.

I think what is particularly unique about State agencies is we have to balance the reality of budgets, interest rates, and financial markets with producing quality low- and moderate-income housing. I stress that bridge and that balancing because we are very concerned this year the portfolio of Federal housing supports, which we utilize, to meet national housing goals is being challenged as wasteful, as unnecessary, as unneeded, and it simply is not the case.

On one argues that housing initiatives have not improved. I am a baby boomer myself and in the generation of the baby boom, percentage of housing units that do not have plumbing has gone from 40 percent to less than 5 percent, and that is a very impressive record, but at the same token to belittle the role that the Federal credit supports, the savings and loan institutions—GNMA, FNMA, FHA—the role the direct subsidy programs have had in meeting, in changing that housing picture in the United States is simply ignoring that set of tools, and ignoring their importance for the future.

To pretend nothing else needs to be done ignores 31 million households in the United States that are living in substandard housing or overcrowded housing or is paying enormous portions of their income for rent.

I just got off the phone with the HUD folks, my old friends who tell me we are losing ground again; that the percentage of people in those categories has actually gone up in the last 5 years. It is not a happy sight. I think it is a reminder to us as we pull back, we do lose ground.

Finally, I think to propose further reductions in the Federal support for housing ignores the economic contribution that housing production makes to the economy. We have seen time and time again that it is a leading indicator and that it is an important element in dealing with our recessionary trends.

To the extent that I speak of tax matters, I would like to for just a moment—I realize I am speaking of things that are not directly germane to the committee.

Senator LAUTENBERG. They are germane; they may be out of our jurisdiction, but please feel free.

Ms. O'CONNOR. Thank you. I hope that members of the committee are very aware that many of the tax proposals being considered are devastating to rental housing, particularly low- and moderate-income housing, and particularly urban housing. Secretary Pierce has confirmed this himself. Never have tax issues been so important in dominating the housing policy discussion.

That is a backdrop to the budget which terminates housing development grants or budget proposal, I should say, that terminates housing development grants; terminates UDAG action grants; terminates Farmers Home activities and tries to impose even more austerity on the people being served by assisted housing today.

UDAG and HoDAG, I am told, are too costly and wasteful. HoDAG is not adequately targeted to cities. It is HUD who chooses the cities and makes the awards, so to criticize the program generically for that characteristic seems ironic to me.

I would like to highlight a couple projects HoDAG and UDAG are bringing to New Jersey residents.

In Atlantic City, which has less than 3 percent vacancy rate, first HoDAG in the Nation will be breaking ground in mid-May. The low-income units represent 30 percent of the project—very low income, large-family units. The rest of the units in that project will be affordable to households with the median income of the State. That is an impressive project and one that is happening because of HoDAG and because of the State's involvement. It would not happen otherwise.

There is a UDAG in New Brunswick which will bring 600 units of housing, all below 80 percent median. That housing would not happen without UDAG, without the State agencies willing to finance it, willing to take a real estate risk. We think those programs should be continued.

We recognize the committee is going to have to strike a balance. We go out in the bond market and see what deficits do to the interest rates and the bond market in long-term financing. We are very realistic ourselves. But I have to recall in 1980, the Heritage Foundation, which I am sure you are familiar with, carving a course of action on the domestic scene for the new Reagan administration recommended budget authority of $29 billion a year for housing. It makes us gasp today. CSHA believes that housing has given enough and people who use our programs have borne a disproportionate share of domestic cuts. People waiting on waiting lists 5 years long, people living in substandard housing, people who turn back vouchers because they cannot suit their needs or landlords who participate in a program that is very, very shallow in its subsidies—they deserve reassurance that there is still concern about housing.

We do recognize the need for austerity. Let me just quickly mention, and then I will conclude, the things we are most concerned about, and we hope the committee will consider as they look at the HUD budget.

First, we believe the direct assistance programs that produce housing should be continued through HoDAG, through UDAG, through the rental rehab programs, 202 and through Farmers Home. We think the section 8 existing program and voucher programs have to be set at subsidy levels that are realistic in the private real market.

It is difficult for families to find rentals in the market; if the subsidy levels are too little, they turn back the vouchers and nothing is accomplished.

We are also concerned in New Jersey in particular, but throughout CSHA, of adequate support of existing inventory of housing. Section 8 amendments that take into account operating costs are crucial to the maintenance of that housing. It is necessary to recognize rents do go up in the private market. There has to be a method for low-income households to pay that increase through the subsidy programs.

We are monitoring very closely the rule which was established 2 years ago which give the State agencies rental assistance payments and supplement increases in their contracts, units up to 90 percent of the need. We recognize the committee was helpful in that it was at a 90 percent and not a lower rate. We are concerned that will have a cumulative effect.

In addition to the budget overall, it is simply important this committee maintain an advocacy position with respect to housing. It is a crucial ingredient in the economy. It is a crucial ingredient for many people.

Senator LAUTENBERG. Thank you very much, Ms. O'Connor. The testimony is eloquent support of the programs that you have been involved in for some time, and you point out, I think, very appropriately, the diminishing supply of housing and the problems that more people face today than we have seen in some years. Unfortunately, we are competing for precious resources at that, and we are looking at all kinds of ways to get these things financed.

You did extend the jurisdiction of the committee a little bit, but as you know, I invited your comments. We need help. We serve in other capacities, many of us in other committees in the Senate. Sometimes we have a chance to do something in one committee that we do not have in the precise committee of jurisdiction at the moment.

We hear complaints that there ought to be, for instance, more efficient ways of encouraging housing development than to provide wealthy people with tax shelters and tax issues are now before us very much so. Much is made of the benefit of housing incentives to these folks. Is this, in your view, too innocent a perspective, or is there a more efficient way to get housing for low- and moderate-income people?

Ms. O'CONNOR. The columnists can argue forever, as you know, about the efficiency of tax incentives financing housing. I think the important element, as you approach this difficult year, is that the public agencies have been able to combine those tax incentives with direct subsidies and produce housing. We have also demonstrated that we can use tax incentives and financing without direct subsidies and still achieve a production goal of rental housing.

We are sensitive that tax-exempt financing debt, when it is examined carefully, will demonstrate that we are producing housing for a group of people that would not otherwise be served. I think we lose sight of the fact that public agencies' activity in a sector of the economy brings other benefits.

In New Jersey, when a developer comes to us and negotiates a tax-exempt financing deal with us, he subjects himself to rent control by the agency, subjects himself to restriction on return on equity; he subjects himself to review of his marketing plans. We make a different in how that housing operates. I think it is partly that——

Senator LAUTENBERG [interposing]. The point you make I think is the appropriate one. Again, giving my own subjective view on this, that is that despite the fact that we are encouraging capital investment by those who can afford to make it and those who are interested in getting the tax benefit ultimately produces a good for the community that cannot be achieved if we do not have the funds coming from other sources.

Ms. O'Connor, thank you very, very much for your testimony. Very interesting. I am sorry we did not have a chance—I did not have a chance to hear the whole thing.

[The statement follows:]

STATEMENT OF FEATHER O'CONNOR, VICE PRESIDENT, COUNCIL OF STATE HOUSING AGENCIES

Mr. Chairman, Members of the Committee good morning, my name is Feather O'Connor. I am the Executive Director of the New Jersey Housing and Mortgage Finance Agency. Today, Mr. Chairman, I represent the Council of State Housing Agencies (CSHA) of which I am the Vice President. The Council of State Housing Agencies represents the 57 state chartered housing finance agencies across the country including the New York City Housing Development Corporation, the District of Columbia Housing Finance Agency, the Puerto Rico Housing Finance Agency and the Virgin Islands Housing Finance Authority. Collectively, during the past seventeen years these agencies have provided financing for more than an estimated 572,000 single family homes and the new construction or substantial rehabilitation of more than an estimated 675,300 rental units. CSHA also represents more than one hundred and fifty affiliated organizations including firms specializing in housing you aware that CSHA views with some concern the long-term affects under the new housing voucher program relative to the provision for adjustments in rent only twice during a five year period. The absolute resolve to fund such adjustments only twice during a five-year period, in our opinion, having the experience of the Section 8 Existing program under our belt, may, in our opinion, be penny wise and pound foolish when it comes to long-term project viability. CSHA would be happy to work with you and your staff on this matter.

Second, your work in cooperation with your colleagues on the Banking Committee on authorizing legislation should continue to maximize program opportunities. The Council believes there are ways to direct and target that which is the perview of this Committee, and we would be pleased to work with you in exploring viable options.

Third, given the Subcommittee's understanding and appreciation of housing and housing needs, by continuing your efforts in the tax precess as well as budget and appropriations processes, you can provide the overall integration necessary to sound housing policy in these days of change. The Administration is on a crusade to re-establish market control by eliminating all subsidies and tax preferences favorable to housing except for the continuation of the mortgage interest deduction. Make no mistake about the future, change will come and it will be dramatic. It may even be essential for a prosperous America, indeed, a healthy world. However, no one, in our opinion, is looking at this from finance and housing development. This morning, I will summarize my testimony. I have previously submitted and would ask without objection that my remarks be included in their entirety in the record of these proceedings.

Before I begin, let me congratulate you, Mr. Chairman, for holding these timely hearings and thank you for allowing CSHA to testify today. My testimony today will first briefly focus on those elements that have led us to be the best housed nation in the history of the world. I would then like to discuss the continuing challenges we all face in answering the unmet needs of many Americans who require housing assistance, and finally, suggest possible future courses of action.

When Congress passed the Housing Act of 1949, it established the goal of "a decent home and a suitable living environment for every American family." Mr. Chairman, on behalf of CSHA and all the member state housing finance agencies, I am here before you today to reconfirm our commitment to those few simple but significant words. At issue today is not whether there is a role for the federal government to play in housing our citizens, but what that role should be and how state housing finance agencies can best help.

Over the last fifty years we have come a long way in meeting the housing needs of our population. This progress represents not only the wealth of our country, but also the high priority given housing by the public at all income levels, combined with an effectively organized private industry. Much of the improvement in housing for all Americans, however, is due to federal intervention which has given housing certain market advantages. Particularly since the recovery period following the Depression, not only have we, in effect, re-housed America, but in so doing, we have continued to meet the challenges of expanding and divergent population.

In large measure, federal policy has played an instrumental role in meeting the housing needs of our population. The federal credit support for housing ownership whether through the Savings and Loan industry, FHA mortgage insurance, or later through the secondary market, allowed access to what is now the American Dream. Special programs such as those sponsored by the Veterans Administration target special housing needs. Conscious of the requirements of those of lower income, the government also introduced subsidy programs and special credit and tax supports for rental housing. These actions helped increase the housing stock which, in turn, resulted in increased opportunity for persons at various income levels.

Let me now review present circumstances. Keep in mind the elements of our past success; the wealth of our nation, an effective industry and governmental support which flowed from the general public's support for housing, and governmental intervention to equalize access to housing opportunity for all incomes.

Housing Need: While no one debates that there has been improvement, we must not be lulled into thinking our job is done. Far from it. The problem of affordable housing for low-income people is growing. Without continued commitments both to new housing production and to the maintenance and preservation of existing federally assisted housing stock, the problem will only be exacerbated. Those who are out of the mainstream for many reasons including the homeless, recent immigrants living today in overcrowded conditions and those on "waiting lists" for Section 8 and Public Housing are those most dramatically affected by our actions.

Are we, in fact, able to guarantee that our progress, over the period of the last fifty years, is locked in place? I think not. Indeed, many of our gains may be temporary. Because of relatively recent cut backs in federal programs aimed at producing new housing units, there is growing evidence that housing stock replacement is falling short of our actual need. Left alone, without some form of governmental intervention, the future is very bleak for those out of or at the edge of mainstream America.

Housing Capital Formation: The question as framed by the economists is whether this country has given too much credit support to housing as an industry at the expense of other capital opportunities which could lead to a more productive and dynamic economy? Given that our nation's overall wealth is key to good housing, this is a critical question. This Administration seems to have answered affirmatively. They are also not alone. The last Democratic administration shared this belief. Witness, for example, their support for ending the system of protecting lower interest rates for housing and ending the use of mortgage revenue bonds. The previous administration, however, also sought to address the negative impact of these rather dramatic changes in direction. Direct outlay programs were continued and governmentally sponsored secondary market programs were encouraged to replace the old systems.

I am not here today to say that we should modify our present course of action. Capital readjustment may, in fact, be necessary. The deficit is a real problem, high interest rates stymie housing progress. The world, after all, is changing. What was good in the past may not work now. I am of the opinion, however, as are many others, that the economists who favor radical changes in housing support understate the importance of housing to our economy, overstate the impact of housing credit supports, and miss the public's priority for good housing. Nonetheless, their ideas are powerful and in some ways persuasive. Thus, Congress is now asked to consider additional reductions in direct outlays for housing, and will be debating changing the tax code in a manner which will result in higher housing costs for all, particularly disadvantaging rental housing. As this debate occurs, Congress must somewhere and somehow look at the impacts and the relative risk, and then seek a balanced approach.

The Role of The Appropriations Committee: HUD Secretary Pierce on April 25, outlined the Administration's views before this Subcommittee with respect to continued support for housing in the form of direct expenditure programs relative to the critically important debate which has raged concerning the FY 1986 budget and efforts to reduce the deficit. Keeping in mind the Secretary's concern regarding the need to "redirect the nation's housing policy to save us from an assisted housing debt of catastrophic proportions while continuing to help the need", CSHA believes that this Committee must play a pivotal role in the current debate regarding housing needs and prudent spendings practices. This Committee will be asked on the one hand along with your colleagues on the Banking Committee to follow in your decision making processes the guidelines which will be established by the Budget Committees of this Congress. In addition, however, you will be asked to weigh the concerns of those agencies and organizations who will advise you of their heartfelt concerns with respect to the need for additional housing resources to address unmet needs. Ultimately, Mr. Chairman, you will be called upon to arrive at a "bottom line" which reconciles two very different but none the less two very real concerns; budget deficits and low-income housing needs. You will be asked to reconcile those differences in dollar terms. The organization I represent before you today has played an active role in the debate over assisted housing funding levels for over a decade. We have seen programs, concepts and ideas, good and bad, come and go. State housing finance agencies such as the New Jersey Housing and Mortgage Finance Agency have actively, in those years, participated in programs such as Section 236 and Section 8. My colleagues and I have worked hand-in-hand with the federal government to this very day on programs such as "HODAG", the Rental Development Grant Program, Rental Rehabilitation and Vouchers.

In each case, Mr. Chairman, where you and the members of this Committee have thoughtfully and carefully weighed the arguments for and against the funding of these programs and carefully considered evidence of their probability of success, state agencies have taken the initiative and often the financial risk (choosing to implement programs such as the Section 236 program without FHA insurance) and made these programs work.

In the context of your current deliberations, Mr. Chairman, forgetting, if we can for the moment, whether it makes sense to freeze, suspend or eliminate housing programs the ultimate and most basic issue before us is whether the federal government should, in comparison to other direct expenditure programs, continue to provide outlays in the form of housing credit and program subsidies. No one in the course of the current debate, it seems to us, has been totally willing to close the door on federal involvement in housing whether it be in the context of FHA insurance, UDAG, or vouchers which the Administration has called the "cornerstone" of their housing policy.

If no one then is prepared to stand before you, Mr. Chairman, and the members of this Committee and say enough is enough, then we believe it is both necessary and proper for this Committee today to look at the tools (programs) which institutions such as my own have been left with and evaluate their usefulness and their effect in meeting this country's unmet housing needs.

Mr. Chairman, in light of what appears to us to be credible evidence of housing need, supported by the failure of even the current Administration to deny the legitimate need for an ongoing federal presence in housing at this point in time, Mr. Chairman, your committee is called upon today to determine what, indeed, are the legitimate and supportable levels of assistance to meet housing needs today as we analyze and continue to debate changes for the future.

A Role For State Government: An element to consider in dealing with these issues is the expansion of the role of state government in the housing discussions. State government over the past decade has been developing skills and programs which are a logical base for continued governmental participation in housing. Let me give you some examples from my agency in New Jersey. Let me first speak in terms of our agency's contribution to the economy of the state of New Jersey. The New Jersey Housing and Mortgage Finance Agency has provided $13.6 million for payments in lieu of taxes to local municipalities, $15.7 million has been paid to 1,000 on-site personnel, $33.9 million has been paid to utility companies suppling gas, oil and water to our projects. Additionally, $1.56 million has been paid to property and employee insurance.

Since its inception, the New Jersey Housing and Mortgage Finance Agency has issued $2.8 billion in tax-exempt bond proceeds providing 33,000 multifamily rental housing units and 52,000 single family mortgages. In FY 1985 alone, my agency provided $150 million in single family bond proceeds yielding 10.7 single family mortgages in New Jersey with special targeting to urban areas. Additionally, $109 million in multifamily bond proceeds has produced 2,525 rental units in five projects in the state of New Jersey, one of which was financed under the HODAG program.

Let me, in conclusion, raise to your attention and the members of this Committee, one other vital area of concern to the Council which has a dramatic impact upon the future availability of housing for low and moderate income persons. In the same way that direct federal spending programs have been defined and funded through your appropriations legislation and have assisted in the production of affordable housing, so too have the benefits of tax-exempt financing. Today we face an assault which essentially threatens to undermine both sides of the equation for housing, direct program spending and tax incentives. Without tax-exempt financing, there will be no more affordable loans for first-time homebuyers, no more home improvement loans for the low-income, and likely no more multifamily rental construction, exclusive of luxury units. The elimination of tax-exempt bonds would, in fact, put NJHMFA out of business as we now know it. Hopefully, today's presentation will help convince you that our public purpose needs to be preserved. Thus, we urge your opposition to any plans to eliminate these important tools.

Mr. Chairman, if tax reform is to become reality and pro-housing tax expenditures are to be forfeited, we must demand increases in the direct spending programs which provide shelter for low- and moderate-income Americans, for without such increases our goals will be impossible to obtain. On the other hand, and it is our hope, a more moderate approach can be adopted. We would like to see housing retained as a priority in the reformed tax code and, therefore, we could accept current funding levels combined with more restricted targeting of direct outlay programs. It is our belief that such an approach will allow us to: continue to provide suitable low- and moderate-income housing, and do our share in reducing the federal deficit.

Continued federal support is necessary. The bottom line, Mr. Chairman and Committee members, is that federal support is essential. Like the add says, "Pay me now or pay me later". If our housing stock is left unattended, and problems of affordability are allowed to fester, we will pay a larger price in the future.

In conclusion, Mr. Chairman, let me suggest the following course of action for the Committee:

First, you must continue your efforts to ensure a fair level of direct assistance for housing. This should include three elements: 1) support for presently assisted housing, including the continued funding of Section 8 amendments, opposition to HUD's budget proposal to freeze fair market rents under the Section 8 Existing HOusing program and rejection of the Administration's plans to reduce administrative fees under both the Section 8 substantial rehabilitation and new construction programs as well as the Section 8 Existing housing program. Additionally, in this regard we wish to bring to your attention the fact that we are carefully monitoring the impact of the funding of Rent Supplement and RAP amendments at 90 percent of need which this Subcommittee worked hard to achieve under difficult circumstances. While those in our membership affected by this issue are in your debt, Mr. Chairman, for having provided a return to the funding of the necessary amendments, I would be less than honest if I did not raise here today the fact that over time the cumulative affect of the ten percent shortfall could severely impact upon these projects. We would simply ask at this time, Mr. Chairman, that we be given the opportunity to work with your staff on this issue when firm data has been gathered. 2) a reasonable level of production assistance, including the continued funding of Farmers Home Housing Programs, HODAG, Rental Rehabilitation and Section 202 direct loans for the elderly and 3) affordability subsidies whether known as existing housing subsidies or vouchers. Here again we would urge you to reject the proposed freeze on Section 8 Existing Housing fair market rents, as well as reductions in administrative fees under the program. Let me say in regard to the use of vouchers and Section 8 certificates in connection with the Rental Rehabilitation program, where no administrative fees have been offered to administer the program, that any reduction in the administrative fee for Section 8 Existing and vouchers would simply exacerbate the managerial dilemma faced by many state agencies who are willingly attempting to make Rental Rehabilitation (a staff intensive program) workable without financial support. Finally, in this regard, Mr. Chairman, let me also make you aware that CSHA views with some concern the long-term affects under the new housing voucher program relative to the provision for adjustments in rent only twice during a five year period. The absolute resolve to fund such adjustments only twice during a five-year period, in our opinion, having the experience of the Section 8 Existing program under our belt, may in our opinion, be penny wise and pound foolish when it comes to long-term project viability. CSHA would be happy to work with you and your staff on this matter.

Second, your work in cooperation with your colleagues on the Banking Committee on authorizing legislation should continue to maximize program opportunities. The Council believes there are ways to direct and target that which is the perview of this Committee, and we would be pleased to work with you in exploring viable options.

Third, given the Subcommittee's understanding and appreciation of housing and housing needs, by continuing your efforts in the tax process as well as budget and appropriations processes, you can provide the overall integration necessary to sound housing policy in these days of change. The Administration is on a crusade to re-establish market control by eliminating all subsidies and tax preferences favorable to housing except for the continuation of the mortgage interest deduction. Make no mistake about the future, change will come and it will be dramatic. It may even be essential for a prosperous America, indeed, a healthy world. However, no one, in our opinion, is looking at this from an overall housing perspective. We would ask that this Committee do so in conjunction with the tax committees of Congress.

Again, Mr. Chairman, Members of the Committee, thank you for allowing me this important opportunity and I would be happy to take any questions you may have.

STATEMENT OF LEE PORTER, NORTH BERGEN COUNTY, NJ, FAIR HOUSING COMMISSION

Senator LAUTENBERG. Mr. Porter, if you could come to the stand. Ms. Porter. I knew that Feather O'Connor was not male. I didn't know Lee could be female. We welcome you. We are going to ask you, please, as much as possible, without robbing you of a lot of the results to make your testimony just as brief as you can. If you can summarize it, I will take your summary. The record will reflect all of your testimony because I am called to other things at 12, and it is now past 12.

Ms. Porter.

Ms. PORTER. I will make it fast. When you talk about civil rights, you have to be prepared to talk loud and fast.

Good morning. I am very glad to be here. Thank you for inviting me. I am Lee Porter, executive director of the Fair Housing Council in Northern New Jersey. The council is a private local corporation engaged in enforcement of New Jersey and Federal fair housing laws under section 812 of the Fair Housing Act of 1968 and 1866 as well.

At this time, I request permission to enter my testimony into the record and summarize it for you as quickly as I possibly can.

Gentlemen, I represent one of more than 70 private fair housing centers throughout the country. Those centers are local; they are grassroots; they are community-based organizations which work cooperatively with government, local government, the private bar, and the community to assist victims of discrimination in housing.

Private organizations, attorneys, and fair housing centers investigate, document, and process complains of discrimination in housing on behalf of the individual black, Hispanic, and other minority families and use State and Federal courts.

An example of a typical fair housing case is a black family, two children, attempting to relocate in the New Jersey area. The fact that the mother and father both held the rank of lieutenant commander in the U.S. Navy, both highly specialized positions, meant nothing to discriminators.

Having been turned away from several housing possibilities, they suspected racial discrimination. Neither knew exactly where to go or what to do. After calling one agency after another for assistance, they went back to Washington, DC, to contact their boss, Casper Weinberger, who then contacted William Bradford Reynolds who put them in touch with the Housing Department of the Justice Department.

There in the Housing section an attorney knew of the Fair Housing Council of Northern New Jersey. They contacted our office and within 24 hours the Fair Housing Council had a temporary restraining order in U.S. district court.

This is to say, Senator, it took a well-qualified black family almost 6 months to do what their white counterpart could have encountered in less than 1 day.

There are several landmark cases, and the *Fair Housing Council* v. *Eastern Multiple Listings Services* also is a landmark case. You in the

Government and we in the private sector work for the goals of the fair housing law. We must search for the most effective and efficient ways to eliminate discriminatory behavior and destructiveness it does to the individual and society.

I believe the Fair Housing Initiative Program of the Housing and Urban Development Department is a useful tool to fight illegal discrimination in housing. It is one of the most well-conceived proposals I have witnessed in my 20 years work with the Fair Housing Council.

First of all, in response to the reality of today, reality No. 1 is that many victims do not know they are being discriminated against. Today, landlords and renters mask discrimination with a smile. No longer do they say, "I am not going to sell or rent to you niggers." What they do is smile, they lie and say that nothing is available. In other words, discrimination in housing has become so sophisticated it is insidious and it is incredibly difficult to detect.

This is supported by numerous studies done by the Department of Housing and Urban Development in which our fair housing centers have participated.

Reality 2: Victims and violators are unaware of their rights and responsibilities under the law. Many victims of discrimination are ignorant of their rights under the law.

Third, there is a certain lack of confidence in the ability to redress the grievance of victims due to delays, insufficient evidence, processing problems, and lack of resources.

Reality No. 4: It has been the history of the civil rights program in this Nation that the greatest strides have resulted from private investigations. The historic role of the private attorney general under our civil rights statute and under the greatest civil rights law of all, the Constitution.

I must say from my own point of view, we have a 99-percent record in the court with our client complaints. A recent study of the Housing and Urban Development entitled, "Fair Housing Records and Demonstration" concluded a modest amount of Federal money invested in the local fair housing group generated an extraordinary amount of activity. The multiplier effect was substantial. It was estimated that $1 of demonstration funding generated $2 to $3 more in activity by the local groups.

Six, the aforementioned study asked whether the establishment of a formal relationship between the Department of Housing and Urban Development and local fair housing groups make enforcement of Fair Housing laws more effective. The answer was a resounding "Yes" after a 24-month study.

The Department of Housing and Urban Development has responded to these realities with a common sense program. Today, testing is the only reliable means of obtaining evidence of discrimination.

Let me say at this point, I was here when Mr. North testified. I am very much aware of the opposition among some who deal in the real estate marketplace to the program. I would like to state very clearly that testing by fair housing centers has been accomplished in a very responsible manner. We test for the industry also. A voluntary partnership in the past has enabled some real estate persons to feel free to call upon the services of private centers when they feel their own minority customers are being discriminated against. In fact, over the past year or two, one out of every four complaints coming into my office come from the real estate industry itself. We use professional testers who have been trained to be impartial.

The U.S. Supreme Court, U.S. district court sanctions—they applaud, they praise the activity of the private fair housing councils. They say we are the best means of determining discrimination in housing. In fact, the Supreme Court has gone so far as to characterize fair housing centers as private attorney generals who contribute significantly to achieving the goal of equal opportunity in housing and I believe I speak for the vast majority of individuals involved in private fair housing enforcement when I say funds provided for testing will be used responsibly for the sole purpose of detecting illegal discrimination. We, too, must comply with certain standards. We have to comply with standards in order to retain and maintain our credibility and our effectiveness in the courts and in the communities.

Standards for testing are those dictated by the legal mandates of the courts and various jurisdictions. And we intend to abide by those standards.

The fifth proposal also responds to HUD's own congressionally funded studies. Too often it seems to me studies are done at great expense, findings made, reports prepared, and they are shelved and forgotten. Here is an opportunity for the Congress to implement the findings of a long, expensive demonstration project by providing the funds for a program which has already proven to work. Fifth is responding to the lack of awareness problem also if it is going to provide for outreach and education funding. While effective enforcement of the law is extremely important, we can never hope to achieve a lasting change, nor can we hope to save money on enforcement in the future unless we work cooperatively to change attitudes.

We feel government is working at its highest quality when it acts as a catalyst for cooperation and change. This proposal before you does exactly that. Government can have no greater goal than to be about the business of assuring equality, in ensuring human dignity, ensuring higher quality of life because those simply because of color of their skin, their religion, or their gender have to endure illegal, dehumanizing treatment at the hands of their fellowmen.

Mr. Chairman, we urge swift approval of the Fair Housing Industry Program. I thank you.

Senator LAUTENBERG. Thank you very much, Ms. Porter. I am sorry you felt so rushed. Your testimony is eloquent. I think it reflects what our responsibility in the Government truly is. I live near Montclair. I am proud of the lack of discrimination that we generally see in the community. It is a community that is open. I think it is a community that reflects at least in this point in our history an attempt to work with real-life problems and a community that functions very well.

I, for one, support the objectives that you outline. I am pleased to have someone from New Jersey speak so eloquently on these important civil rights issues.

A couple of quick questions. How do you characterize housing discrimination in terms of the picture today to 10 or 20 years ago? Has it improved, worsened—what do you think?

Ms. PORTER. The areas where there has been a fair housing council, such as northwest Bergen, it has been improving because of the presence of the fair housing council. In many areas, it is worse.

Senator LAUTENBERG. You have no way of judging it as a national picture, do you?

Ms. PORTER. Well, most of the fair housing groups throughout the Nation have pretty much the same experience that it is much more pervasive and insidious than it has been in the past. We work with the real estate industry, also.

Senator LAUTENBERG. I know, and I did not hear the other testimony, but I think, as I understand it, it was in great odds with the view you presented. Is that so?

Ms. PORTER. Well-----

Senator LAUTENBERG [interposing]. You don't have to defend your position to me.

Ms. PORTER. You know, Judge Stern and the judges down in Newark would throw us out on our ears in two seconds if we were even to send in a paper that remotely smacks of vigilantism or anything that was frivolous. Fair housing centers are not frivolous; we are very, very serious people. We are trying to correct a very serious wrong in America today.

Senator LAUTENBERG. You know the administration is requesting money for fair housing programs. It is proposing, however, less for other housing programs, and how will the reduction in Federal assistance for housing programs generally affect the work of the fair housing advocates?

Ms. PORTER. Very seriously. We have to realize, Senator, that you can produce, you can have another corporation of housing in New Jersey. Without 202 and without equal opportunity in housing, Mount Laurel II can come to fruition without helping one black or minority family. I think you realize Mount Laurel II was a black initiative; that blacks were zoned out, ruled out, discriminated out, steered out of communities. One of the judges made it an economic class and when you made it an economic class the blacks, Hispanics, and other minorities have lost. You are seeing housing being built, but you are not seeing the black and other minorities taking advantage of the—it is not a proliferation of housing yet. But I really believe we are going to see a housing boom similar to that of post World War II. Once again, blacks will stand a very good chance of being eliminated from that housing boom, the same as they were in the post World War II.

Senator LAUTENBERG. I think you might be more right on your second prediction than your first. Thank you very much, Ms. Porter, for your testimony. It is a pleasure to see you here.

Ms. PORTER. Thank you very much.

[The statement follows:]

STATEMENT OF LEE PORTER, EXECUTIVE DIRECTOR, FAIR HOUSING COUNCIL OF NORTHERN NEW JERSEY

I am Lee Porter, executive director of the Fair Housing Council of Northern New Jersey. We are a local, grassroots, community-based, 25-year-old organization. I am speaking in reference to the concerns addressed by more than 70 other local fair housing centers throughout the country. I wish to thank this Senate subcommittee for the opportunity to express our deep fair housing concerns and offer support for the Fair Housing Initiatives Program of the Department of Housing and Urban Development.

For years, private organizations, attorneys, and fair housing councils have investigated and processed complaints of discrimination in housing on behalf of individuals and families in State and Federal courts.

An example of a typical fair housing council case is that of a black family with two children who were attempting to relocate in the northern New Jersey area. The fact that the mother and father both held the rank of lieutenant commander in the U.S. Navy, both highly specialized physicians, meant nothing to discriminators.

Having been turned away from several housing possibilities, they suspected racial discrimination. Neither knew exactly where to go or what to do. After calling one agency after another for help, they went back to Washington, DC, and cotnacted the office of their boss, Caspar Weinberger, who contacted William Bradford Reynolds, who put them in touch with the Housing Department of the Justice Department. There the attorney in housing knew of the fair housing council in northern New Jersey. They contacted our office for assistance and we were able to obtain a temporary restraining order within 24 hours. Thus, with litigation in the U.S. district court, it took a highly professional, well-qualified black family almost 6 months to accomplish what any white counterpart could have done in 1 day.

Discrimination in housing is pervasive, rampant, and, in recent years, become much more subtle, or simply gone underground. Our experience in working with minorities in search of shelter indicates that most blacks and other minorities do not even know when they have been discriminated against and when they find out, they do not know where to go or what to do.

Where they exist, the presence of fair housing centers assist municipalities and private developers in establishing equal opportunity in residential communities. In a few areas, we are beginning to see some improvement in the treatment of racial minorities, women, religious, and ethnic minorities in the housing marketplace. While there have been few accomplishments through the fair housing programs which include litigation, conciliation, and education, much remains to be done in order to make equal opportunity in housing a reality.

We feel the Fair Housing Initiatives Program will hasten the demise of illegal housing discrimination and provide those involved in buying/selling/renting or serving as a third party educational opportunities and inform them of their legal and moral responsibilities not to discriminate.

In northern New Jersey and several other regions, community-based fair housing councils are the largest single source of housing complaint referrals to the courts, as well as State equivalent agencies, to HUD for conciliation, and to the Department of Justice. Working with the real estate industry independently or through HUD's community housing resource boards, a voluntary partnership forged in the past, has enabled some real estate salespersons to feel free to call upon the services of the private housing centers when they feel their own minority customer(s) is being discriminated against.

Private fair housing groups are a proven entity. The Department of Housing and Urban Development has recognized their good track record which is cost effective. The successful HUD studies and research and demonstration projects which engaged the services of private fair housing councils throughout the Nation speak for themselves. Clearly, we must conclude that we can significantly enhance fair housing efforts if we work together.

Federal and State organizations, substantially equivalent agencies, call upon private fair housing centers for assistance and testing activities. Testing activities by the fair housing councils have been recognized as the best way to measure the depth and breadth of discrimination in the housing marketplace. Testing by fair housing councils has been accomplished in a responsible manner because testers are trained to be impartial.

The U.S. Supreme Court and the U.S. district courts sanction, applaud, and praise testing activities of the private fair housing councils as the best means of determining discrimination in housing. In fact, the Supreme Court has characterized private fair housing centers as private attorney generals who contribute significantly to achieving the goal of equal opportunity in housing.

Private groups have the best track record in obtaining the largest damage awards in the courts. Although some of the large court awards have been well over a half million dollars, as a racial minority who has had to endure repeated incidents of housing discrimination, I feel that there is no amount of damage award high enough to compensate me for denial of my constitutional right to equal opportunity in housing.

Those of us at the local community level recognize the interdependency between HUD and Federal and State agencies, the real estate industry, and ourselves. We are certain that the private fair housing agencies are essential components of the total fair housing enforcement effort and FHIP will enhance greatly the partnership between public and private agencies and lead to more effective enforcement of title VIII. The constitutional rights of minorities must be protected in the housing marketplace.

We urge this Senate subcommittee to approve the Fair Housing Initiatives Program with all deliberate speed in order to proceed with the job of achieving the goal of fair housing throughout the Nation.

ENVIRONMENTAL PROTECTION AGENCY

STATEMENT OF JOHN L. McCORMICK, WASHINGTON REPRESENTATIVE, ENVIRONMENTAL POLICY INSTITUTE

Senator LAUTENBERG. Mr. McCormick, I ask you for my benefit and other members of the committee to make available to us any comments you have as well as the specifics of your testimony.

Mr. McCormick. Thank you, Mr. Chairman, it is a pleasure to have an opportunity to testify before you this afternoon. I am John McCormick, the Washington representative with the Environmental Policy Institute. Our organization has been in existence since 1972 and we follow much of the Nation's environmental legislation.

Our involvement with the EPA budget is spread over about 5 years. We have tried to maintain some visibility on the issue. As you are aware, it is quite a difficult issue to grab hold of, particularly at a time when high Government deficits diminish Congress' enthusiasm for increasing the EPA budget.

I would like to take this opportunity to very briefly say my statement is not an illustrative statement of our position because it is just repeating the obvious. It is quite obvious the problems facing the Environmental Protection Agency as the Congress reauthorizes fairly extensively legislation, but obviously vital legislation, without appropriating money for its implementation. And the fact the 98th Congress did reauthorize a much-improved RCRA and the Agency budgeting it out at an $86 million implementation cost and finding it had to reprogram some $21 million or $22 million to implement it at the expense of existing programs is, in our view, one of the worst things that can happen to that Agency because we now have pending in the 99th Congress five environmental laws, all of which can carry increased costs of implementation.

What I think we are going to see, Mr. Chairman, is the Agency for it to cannibalize itself so it can implement the vital parts of these new laws.

Mr. Chairman, there comes a point where it is not only the environmental community whose ox is in the middle of the ring. We are going to see the North American timber industry are on the line as well. Because, as the timber industry in West Germany is one of the multitude of air pollutants affecting the health of the forest, they now identify 50 percent of the forest areas affected by air pollution. There is as high a degree of concern within the North American timber industry.

The United States and Canada, I think, over a few years are going to come up to a level of understanding the Western Europeans have and their demand for action is going to be heard, perhaps more than is being heard today.

The chemical industry is finding the insurance industry is backing away from writing policies. That is not because we are overregulating the industry, Mr. Chairman, it is probably because the industry is being underregulated. The insurance policies for the RCRA disposal industry are going to create great havoc in the chemical industry, and that is something this Congress is going to have to deal with. Perhaps not in this Congress, but certainly soon.

What are some of the solutions? Mr. Chairman, I do not come here with a lot of solutions. All I can do is keep reiterating our need to see the EPA budget increase, but I realize as well, the Senate Budget Committee is pursuing a freeze resolution and it might, in fact, be that a continuing resolution is what we see in the fiscal year 1986 EPA appropriation.

Therefore, Mr. Chairman, the problem compounds itself. The overall health and well-being of the chemical industry is not helped. It is threatened by this kind of action, and I think the public, which is growing more anxious every day about what they are hearing is in their drinking water, is in the air they are breathing is going to have a backlash effect, Mr. Chairman, similar to the early 1970's.

I would remind this subcommittee, the outgoing president of the National Chemical Association several years ago admonished his colleagues, if the chemical industry does not police itself and begin to correct the problems of the past, then its future may be in jeopardy.

I would leave this subcommittee with a plea that perhaps this is the time, Mr. Chairman, recognizing the fiscal constraints in the Federal budget, that the authorizing committees, the appropriating committees, the industry, the members of the public, come together in a cooperative effort to find a way to perhaps even prioritize within the EPA account those expenditures which must be made because standards must be set because RCRA regulations, with the hammer approach must be adhered to, and I would say now is the time, Mr. Chairman, for this subcommittee to demand that all the players come to you with an intention to cooperate and find a way out and soon because the problem can only get worse.

Thank you, Mr. Chairman.

Senator LAUTENBERG. Thank you, Mr. McCormick.

SUBCOMMITTEE RECESS

The committee will be in recess until this afternoon at 1:30.

[Whereupon, at 12:20 p.m., the subcommittee recessed to reconvene at 1:30 p.m. the same day.]

(AFTERNOON SESSION, 12:37 P.M. THURSDAY, MAY 2, 1985.)

NONDEPARTMENTAL WITNESSES

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

STATEMENT OF JONATHAN E. GRINDLAY, MEMBER, STEERING COMMITTEE, SPACE SCIENCE WORKING GROUP, ON BEHALF OF THE ASSOCIATION OF AMERICAN UNIVERSITIES

Senator LEAHY [presiding]. The subcommittee will come to order.

Senator Garn has been delayed with another matter, but he will be joining us in just about an hour. We have Dr. Jonathan E. Grindlay, member of the steering committee, Space Science Working Group, on behalf of the Association of American Universities.

Dr. Grindlay, your whole statement, of course, will be placed in the record at the close of your remarks, and would you please give us a synopsis of it?

Mr. GRINDLAY. Thank you, Mr. Chairman. Mr. Chairman, I am grateful for the opportunity to come before you today to speak on behalf of the Space Science Working Group. We recognize the strong sentiments for fiscal restraint now being expressed by both the public and the Congress. However, NASA's programs at present and as proposed are models of fiscal restraint. The proposed budget adds nothing new to the Space Science Program, but only maintains the course previously charted by NASA and the Congress. To alter it significantly risks a midcourse correction which could have serious consequences on the trajectory of space science for years to come.

As in other research and development efforts, the science which can be done from space spurs engineering, generates the technological spinoffs, and opens the doors for greatly expanded uses of space.

Over the past decade, however, real support in constant dollars for the research and analysis portion of the NASA budget has declined at a level of some 3 percent per year. Any cutbacks in the fiscal year 1986 budget would further erode this vital research base.

A high-tech organization, which might increasingly describe our Nation, should preserve its research and development capabilities, perhaps best epitomized in the NASA programs, as high-priority investments in our future.

The proposed fiscal year 1986 budget for NASA allows for no new starts of major flight programs in space science. The Space Science Working Group identifies this as the area of primary concern for space science. The delays imposed on NASA's planned and orderly starts for major missions not only increase their costs, but also increase the risks that missions originally planned by the United States will be carried out by other countries or, in the case of planned international missions, such as ISTP, not be carried out at all.

In both cases, the loss to the leadership, prestige, and credibility of U.S. space science is great.

The major missions requiring these new starts are the cornerstones of the NASA Space Science program. These are the missions that tackle the biggest questions and yield the most profound answers. For example, in astronomy and astrophysics, the complementary nature of observations which will be possible with the Hubble Space Telescope and the Gamma Ray Observatory, both of which are now under final development, together with the future x ray and infrared telescope facilities, AXAF and SIRTF, will allow us to finally answer questions on the very origin and ultimate fate of our universe.

The major missions embodied in these and the other new starts will guide space science into the space station era of the mid-1990's when new ways of carrying out space science will begin to become available.

It is hoped that in the space station era, the major new missions requiring new starts can be carred out without the increase in cost, complexity, and delay, which has characterized the Shuttle era thus far. In fact, cost increases for the major missions which have just become or are ready to become new starts are already being contained. The present new starts for solar system exploration, such as the Mars Observer, will be carried out for relatively lower costs than previous ones, and both NASA and the astronomy and astrophysics community are increasingly confident that both AXAF and SIRTF could be carried out for no more than the cost of the Hubble Space Telescope alone.

However, cost containment measures will become increasingly pressed in the space station era as the larger scientific questions to be addressed require increasingly complex missions.

In addition, the number of scientific disciplines eager to reap the rewards of space science is increasing. This further increases the likelihood of delays and, thus, costs between the major missions in any one discipline. Both of these problems can be solved in the space station era if we can, in the meantime, develop creative new ways of carrying out space science. This process can and should begin now in the Shuttle era. The key is in the program for frequent and low-cost flight opportunities of experiments from the Shuttle.

It is only through a much more vigorous program of flight opportunities of these low-cost experiments that the truly new experimental and managerial approaches can be tried.

If the Shuttle and, eventually, the space station can provide the easy access to space as has been promised, then the risks should be allowed to increase and should even be encouraged to increase for these low-cost short duration experiments from which the major-missions of the future will be designed.

The report of the NASA Advisory Council Shuttle Science Working Group outlines a plan whereby for the relatively modest investment by

NASA, of some $25 million per year, such a frequent flyer program could be carried out. The Space Science Working Group strongly endorses this plan, together with the maintenance of an active suborbital flight program, as critical for the future health of space science. I have pointed out that without such an active low-cost flight opportunity program now, we will not have developed either the experiments or trained the people to carry out the space programs of the 21st century.

The programs of the future will also suffer if university research continues to be carried out with outdated laboratory equipment. The Space Science Working Group again repeats its warning of previous years that without a modest investment by NASA in research instrumentation, the effectiveness of university groups to do cutting-edge science is curtailed.

In my laboratory, for example, we have struggled for the past 2 years to try to maintain a 12-year-old computer system used to check out a new balloon-borne experiment under development for high energy x ray astronomy.

We are pleased to see that NASA is starting to make an investment in the future manpower for the space program with a broadened Graduate Student Researchers Program, and we urge NASA to maintain this program and expand it to include incoming as well as advanced graduate students.

Senator Leahy. How do you feel about high school and university level as it is as far as providing adequate pool for whether its NASA or any NASA, Defense, or any other—National Institutes of Health— anything like that is going to require people who can do more than read the instructions of how to get to the gym.

Mr. Grindlay. I feel this is a very critical area.

Senator Leahy. Considering some of the college graduates who apply to my office, I am not at all sure colleges require people be able to even read how to get to the gym.

Mr. Grindlay. I think through the graduate student programs that NASA is supporting in its small way, we have a real hope——

Senator Leahy [interposing]. I understand that. I am concerned about before they even get to the graduate program. We do not have any language requirements now to get into college, do we? We do not have any significant math or science requirements to get into most colleges, do we? Once you get in there, is there any requirement in most colleges or universities for either math, science, languages, any of these things, that might be a discipline beyond being able to read the newspapers and clip Doonesbury?

Mr. Grindlay. I think, Senator, there are indeed requirements along these lines. Certainly at my university, there are very well-defined requirements in science and mathematics, humanities. It is increasingly common.

Senator Leahy. Do you require any language background to get into your university?

Mr. Grindlay. To get into the university, there is not a hard and fast language requirement.

Senator LEAHY. Then there is no requirement.

Mr. GRINDLAY. For admission.

Senator LEAHY. Without any language background, you can still get admitted?

Mr. GRINDLAY. Without a foreign language background, it is possible to be admitted; yes. I believe that is correct, Senator.

Senator LEAHY. What kind of math background is needed?

Mr. GRINDLAY. You are at a real disadvantage if you have not had at least advanced algebra and increasingly it is the case in our incoming students they have had a course in calculus. So there is very real interest there.

Senator LEAHY. I think it should be possible for everybody who wants to go to college in this country to be able to go, but I do not think the college has to be so easy that everybody can automatically pass. There should be certain basic levels. I think we have slipped.

Again, I am doing it as a broad-brushed thing, nonscientific, but, boy, requirements for getting into college other than SAT scores are going down all the time.

Mr. GRINDLAY. I agree. I think the pendulum is swinging the other way. We are seeing increasingly that standards are being tightened up a bit. Students are more conscious of the hard science courses. I think we will see a return.

Let me continue, if I may, with my testimony. I am nearly finished.

I was mentioning the importance of the Graduate Student Program and the fact the graduate students embody the future of not only our space program but much of our Nation's future high technology base. I think this is a critical area that NASA deserves credit for.

I recognize that this is an unusually difficult year to come before you asking for your support for these areas of the NASA appropriations which we view as so important to the Nation's universities and future Space Science Program. I urge you to consider, however, that each of the problems highlighted here—the continuing need for new starts, an invigorated frequent flight opportunities program and support for both laboratory facilities and graduate students—all have long-range implications and cannot be forever postponed.

Whereas the NASA budget supports some programs which can possibly derive support from outside the Federal appropriations process, the fundamental and long-term nature of the Space Science Programs at our Nation's universities and NASA laboratories are totally dependent on Federal support.

I hope you would agree this is an area where the Federal Government has a unique responsibility to support the long-term science and technology of the Nation.

The NASA Space Program and its realization in space science is strongly supported by the public as was evident by the enthusiastic crowds at the recent Shuttle launch, which I attended at the invitation of a close friend and member of the crew, Jeffrey Hoffman, and in which the chairman of this subcommittee, Senator Garn, participated.

If I may speak for those crowds as well as my university colleagues, please maintain at least the recommended budget for space science; the Nation can ill afford not to.

Thank you, Mr. Chairman, for this opportunity to speak to your committee. I would be happy to answer any questions.

Senator LEAHY. Considering some of the obscene cost overruns at NASA by contractors in the Space Shuttle system, are you concerned the cost of the space station is going to squeeze out space science activities?

I happen to feel very strongly with you that we should be doing more on space science activities. Do you see the hardware cost just squeezing out a chance to do anything other than those things that photograph well?

Mr. GRINDLAY. I share your concern, Senator. I think most university scientists in space science are concerned that the development of the space station may well squeeze space science. We have made our concerns known to NASA on many occasions. We have been assured—and I would hope that this is indeed the case—that NASA, in planning for the space station now is taking the scientific community very much at face value and bringing them into the loop at an early enough stage that designs can be made with the scientific needs very much included in them, and that this cost issue will not squeeze out space science.

Another point, if I may, reiterates, which I think bears on your question, Senator, is that if we can provide this opportunity for frequent low-cost access to space, we may be able to guide development of the space station and the experiments which will fly on the space station in the future in a much more cost-effective manner. We may be able to learn a lot of critical lessons over the next 10 years which will allow us to not make some of the mistakes that have resulted in cost overruns in the past.

Senator LEAHY. Thank you very much.

[The statement follows:]

STATEMENT OF JONATHAN E. GRINDLAY, MEMBER, STEERING COMMITTEE, SPACE SCIENCE WORKING GROUP, ON BEHALF OF THE ASSOCIATION OF AMERICAN UNIVERSITIES

Mr. Chairman and Members of the Subcommittee, I am grateful for the opportunity to come before you today and talk about the proposed budget for NASA for FY 1986. I speak on behalf of the Space Science Working Group, a consortium of 21 universities in this country which are actively engaged in space research and are concerned about the future of America's space science program. We recognize the strong sentiments for fiscal restraint now being expressed by both the public and the Congress. However, we believe that a vigorous space science program is vital to our nation's future in many and far-reaching ways and that NASA programs at present and as proposed are models of fiscal restraint. The proposed budget adds nothing new to the space science program but only maintains the course previously charted by NASA and the Congress. To alter it significantly risks a mid-course correction which could have serious effects on the trajectory for space science for years to come.

America is justifiably proud of its space program. NASA has carried out this program over the years with broad input from our university scientists and engineers, who have provided many of the new ideas for determining the program's scientific objectives and the means for carrying them out. As importantly, those same university scientists and engineers educate and train the new generations who will carry on our space program in the future.

As in other research and development endeavors, the science which can be done from space spurs engineering, generates the technological spinoffs, and opens the doors for greatly expanded uses of space. We would view the curtailment of this science and the groups carrying it out at universities and laboratories, not as fiscal restraint, but as a restraint of our nation's future productivity. Over the past decade, real support in constant dollars for the Research and Analysis (R&A) portion of the NASA budget has declined at a level of some 3% per year. Any cutbacks in the proposed FY 1986 budget would further erode this vital research base. Not only would the university teams of space scientists and engineers, an irreplaceable national resource, suffer but so would much of the creative spark of our nation's future with high technology. A high-tech organization, which might increasingly describe our nation, should preserve its research and development capabilities--perhaps best epitomized in the NASA programs--as high priority investments in our future.

The proposed FY 1986 budget for NASA allows for no new starts of major flight programs in space science. The Space Science Working Group identifies this as the area of primary concern for space science. The deferral of new starts for missions such as the Oceanography Topography spacecraft (TOPEX), which had been recommended for a FY 1986 new start by NASA, not only seriously affects the individual programs involved, but all the other highest priority programs waiting in the queue as well. With no new starts for FY 1986, programs such as the International Solar Terrestrial Program (ISTP), the Comet Rendezvous mission, the Advanced X-ray Astrophysics Facility (AXAF), and the Space Infrared Telescope Facility (SIRTF) which are all ready to be considered for approval, are in jeopardy in future years.

The delays imposed on NASA's planned and orderly starts for major missions not only increase their costs, but also increase the risk that missions originally planned by the U.S. will be carried out by other countries or, in the case of planned international missions such as ISTP, not be carried out at all. In both cases the loss to the leadership, prestige, and credibility of U.S. space science is great.

The major missions requiring new start status are the cornerstones of the NASA space science program. They tackle the biggest questions and yield the most profound answers from the beginnings of a global understanding of climactic and geophysical conditions on Earth to even details of the almost unimaginable extremes of the physical conditions near distant pulsars and quasars. For example, in astronomy and astrophysics, the complementary nature of the observations which will be possible with the Hubble Space Telescope (HST) and Gamma Ray Observatory (GRO), now under final development, together with the future x-ray and infrared telescope facilities, AXAF and SIRTF, will allow us to finally answer questions on the very origin and ultimate fate of our universe.

These space observatories are so much more powerful than their predecessors that the richness of the phenomena they will discover will require, in many cases, the synergistic approach of their combined observations to crack the cosmic code. Similarly, the simultaneous observations of the magnetic fields and energetic particles in the solar wind and near-earth environment with the multiple spacecraft of the ISTP will provide a truly global view of solar-terrestrial relations and the dynamical evolution of the earth's magnetosphere. The major missions embodied in these and the other new starts will guide space science into the space station era of the mid 1990s when new ways of carrying out space science will begin to become available.

It is hoped that in the space station era, the major new missions requiring new starts can be carried out without the increase in cost, complexity and delay which has characterized the shuttle era thus far. In fact, cost increases for the major missions which have just become or are ready to become new starts are already being contained. The present new starts for solar system exploration such as the Mars Observer (MGCO) will be carried out for relatively lower cost than previous ones; and both NASA and the astronomy and astrophysics community are increasingly confident that both AXAF and SIRTF could be carried out for no more than the cost of the Hubble Space Telescope (HST) alone.

These cost containment measures, which reflect the determination of both NASA and the space science community to maintain an orderly program of new starts, will become increasingly pressed in the space station era as the larger scientific questions to be addressed require increasingly complex missions. In addition, as is made clear in the September 1984 report of the Office of Science and Technology Policy (OSTP), "Funding Trends in NASA's Space Science Program", the number of scientific disciplines eager to reap the rewards of space science is increasing. This further increases the likelihood of delays, and thus the costs, between the major missions in any one discipline. Both of these problems might be solved in the space station era if we can, in the meantime, develope creative new ways of carrying out space science. The space station could catalyze this process by providing the central hub for the assembly and checkout, launch and maintenance of space science experiments.

This process can and should begin now, in the shuttle era, however. The key is in the program for frequent and low cost flight opportunities of experiments from the shuttle. It is only through a much more vigorous program of flight opportunities that the truly new experimental and managerial approaches can be tried out. NASA has been, justifiably, highly success-oriented and has minimized the risks of failure of its missions to the maximum extent possible. This is prudent when space science can only be done, in a given discipline, on a very infrequent schedule. If the shuttle, and eventually the space station, can provide the easy access to space as has been promised, then the risks should be allowed to increase. Clearly this would be fiscally and scientifically irresponsible for the major missions, but it should be allowed and even encouraged for low-cost, short duration experiments from which the major missions of the future will be designed.

The report of the NASA Advisory Council Shuttle Science Working Group outlines a plan whereby for the relatively modest investment by NASA of $25 million per year, such a "frequent flyer" program could be carried on and provide opportunities for perhaps 20 flights re-flights per year. The Space Science Working Group strongly endorses this plan, together with the maintenance of an active sub-orbital flight program, as critical for the future health of space science. In my capacity as a member of the Astronomy and Astrophysics Task Group of the National Academy of Sciences study "Major Directions for Space Science for 1995-2015," I have pointed out that without such an active low-cost flight opportunity program now, we will not have developed either the experiments or trained the people to carry out the space programs of the 21st century.

The programs of the future will also suffer if university research continues to be carried out with outdated laboratory equipment. It is regrettable that the future generations of scientists are being trained on research equipment of a past generation. The Space Science Working Group again repeats its warning of previous years that without a modest investment by NASA in research instrumentation, the effectiveness of university groups to do cutting-edge science is curtailed. In my laboratory, for example, we have struggled for the past two years to try to maintain a 12 year old computer used to check out a new balloon-borne experiment under development for high energy x-ray astronomy.

The National Science Foundation, and the Departments of Energy and Defense have recognized the equipment problem and now have programs in place to upgrade the laboratory equipment for university research programs sponsored by them. NASA must do the same for its research programs.

We are pleased to see that NASA is starting to make an investment in the future manpower for the space program. We commend the introduction, in FY 1985, of a broadened Graduate Student Researchers program and urge that NASA maintain it and eventually expand it to include incoming as well as advanced graduate students. These students embody the future of not only our space program, but much of the nation's future high technology base as well.

I recognize that this is an unusually difficult year to come before you asking for support for these areas of the NASA appropriations which we view as so important to the nation's universities and future space science program. I urge you to consider, however, that each of the problems highlighted here--the need for continuing new starts, an invigorated program for frequent flight opportunities, and support for both laboratory facilities and graduate students--all have long range implications and cannot be forever postponed. Whereas the NASA budget supports some programs which can possibly derive support from outside the Federal appropriations process, the fundamental and long-term nature of the space science programs at our nation's universities and NASA laboratories are totally dependent on Federal support. Although our universities are enthusiastic partners in the space science endeavor, it is obvious that they do not have the means to carry out these programs on their own. I would hope you agree that this is an area where the Federal government has a unique responsibility to support the long-term science and technology of the nation.

The NASA space program and its realization in space science is strongly supported by the public as was evident by the enthusiastic crowds at the recent shuttle launch, which I attended at the invitation of a close friend and member of the crew, Jeffrey Hoffman, and in which Senator Garn participated. If I may speak for those crowds as well as my university colleagues--please maintain at least the recommended budget for space science, the nation can ill afford not to. Thank you for this opportunity to speak to you; I would be happy to answer any questions.

THE SPACE SCIENCE WORKING GROUP'S* STATEMENT ON THE FY 1986 NASA SPACE SCIENCE BUDGET

INTRODUCTION

NASA's space science programs are a source of great pride to the United States. They have brought this country worldwide recognition for its scientific and technological leadership. The unknown frontiers of space provide challenges to scientific inquiry which result in spectacular discoveries. These discoveries in turn stimulate the development of new technologies which strengthen our national security and increase our industrial productivity. Our future leadership and economic prosperity are dependent upon the vigor of our research and technological efforts today and NASA's space science programs are at the forefront of that effort.

Universities are and will continue to be a vital component of the United States space science program. University scientists perform basic space science research--they pose fundamental questions to be answered by NASA missions. In the process, university scientists train the succeeding generation of space scientists and engineers. The interaction at universities between scientists working in the space program and their colleagues in a variety of disciplines provides a source of new ideas for the NASA program and facilitates the incorporation of the space program's results into the mainstream of the nation's scientific and technological base.

SPACE SCIENCE IN THE PROPOSED BUDGET

The proposed budget for the Office of Space Science and Applications would continue the funding of several programs which will make 1986 an exceptional year for space science. 1986 will see the launches of Galileo to Jupiter, the International Ulysses mission to view, for the first time, the Sun from high heliospheric latitudes and the Hubble Space Telescope to conduct astronomical investigations never before possible from ground observatories. In addition the Voyager 1 spacecraft will encounter Uranus on its trip out of the solar system and Halley's comet will be studied from ground and Shuttle-based telescopes.

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* The Space Science Working Group is a consortium of research universities whose members participate in NASA space science programs. For more information, contact the Association of American Universities, One Dupont Circle N.W., Suite 730, Washington, D.C. 20036, (202) 466-5030.

The growth in funding from FY 1985 is primarily due to planned increases to execute previously approved missions such as the Upper Atmospheric Research Satellite, the Mars Observer, and the Venus Radar Mapper. Increases in Mission Operations and Data Analysis (MO&DA) will prepare for the the soon-to-be-launched Hubble Space Telescope and provide for analysis of data from recent successful missions such as Earth Radiation Budget Experiment (ERBE) and Active Magnetospheric Particle Tracer Explorer (AMPTE). It is notable that for the first time in several years, NASA is proposing increases for all of the Research & Analysis budgets. These nominal increases will offset, in part, reductions in purchasing power due to inflation.

- The Lack Of New Starts

While the proposed budget will continue to fund those programs which are in place in the FY 1985 budget; it provides no new scientific mission starts. The lack of even one new start this year interrupts the orderly advance of the U.S. space science program and represents a curtailment in our national program. One important measure of the program's vigor is the rate of new starts, normally one or more in a given year.

"New start" status for a mission is a milestone in the orderly progression of a program. It occurs after the mission has been studied and planned by scientists and contractors. and in some cases, after teams of investigators have been selected. Already. the queue of science missions is backed up. with some high-priority projects having been deleted or postponed for years.

Much of the fundamental research conducted in NASA space science programs is linked budgetarily to space missions. Delays in funding can disrupt research and training far beyond the duration of those delays. Research teams--and the programs of research and graduate education they conduct--must be assembled carefully over time; once disrupted. they cannot easily be reassembled.

- The Proposed Budget Fails to Address the Needs of the Space Science Program Infrastructure

NASA's space missions, which receive so much public attention, stand on a broad infrastructure of scientific research and training activities conducted primarily at universities and NASA centers. The success of the missions depends greatly on the condition of these activities, which we note, have suffered a slow erosion over time. The proposed FY 1986 budget fails to address the structural deficiencies. These deficiencies--including growing obsolescence of laboratory and other research equipment and facilities, and inadequate support for graduate students, constitute an accumulating deficit. Once that structural deficit falls below a certain critical mass, our capacity to respond to new challenges is severely weakened. We are rapidly approaching that point.

The Space Science Working Group is extremely concerned that the Administration's FY 1986 budget for NASA reflects short-term budgetary decisions that may generate unintended but irreversible policy consequences for U.S. leadership in space science. While the proposal does not present an immediate crisis, it is another budget which fails to address the basic structural needs thus continuing the slow erosion of the space science research base.

The following paragraphs describe four fundamental aspects of the NASA research base program which are in need of substantial strengthening over time.

FREQUENT, LOW-COST FLIGHT OPPORTUNITIES: The development of new instrumentation for NASA's programs and the training of students require frequent, low-cost flight opportunities. New instruments need to be tested on short Shuttle flights and on suborbital flights before being placed on expensive, long-duration missions. Graduate students need the "hands-on" experience of designing, building, and flying a low-cost payload. In addition to the essential education, these flights produce significant results which sharpen the scientific questions to be answered in major spaceflight programs.

The Shuttle is supposed to provide frequent flight opportunities through "get-away specials," "hitchhikers," and free-flying Spartans. However, this aspect of the Shuttle program has yet to be fully realized. The NASA Advisory Council *Shuttle Science Working Group Report* (September, 1984), identifies further steps that are necessary to increase and simplify flight opportunities for science and technology on the Shuttle.

Aircraft, sounding rockets, and balloons in the suborbital program provide low-cost, low-risk, and quick-turnaround flight opportunities. This program has been a mainstay of instrument development and graduate student participation in the space program since its inception and will continue in this role for the foreseeable future. The suborbital program is a low-cost, high-leverage component of the NASA effort which should receive continuing support.

RESEARCH LABORATORY EQUIPMENT: Much university laboratory equipment for space research is out of date. With declining purchasing power of Research and Analysis funds, new equipment cannot be purchased. Much current research and graduate students' training is being conducted with equipment from a past generation impairing the quality and productivity of research and training programs.

The need to upgrade university laboratory equipment has been recognized by the National Science Foundation and the Departments of Energy and Defense, which have initiated targeted programs to address the needs. NASA should undertake a similar program, as was recommended in the Report of the NASA/University Relations Study Group (July, 1983).

GRADUATE EDUCATION: Universities train the future generations of scientists and engineers--the talent that will provide the new ideas in space research and will apply the knowledge generated by that research to problems in other technological fields. NASA has recently established a new component of its Graduate Student Researchers Program which will provide financial support to graduate students at universities studying in fields relating to space science. We commend NASA for this promising effort to attract the best students to pursue careers in space science. We urge NASA to expand the program to support the increasing numbers of talented students needed for future challenges.

RESEARCH AND ANALYSIS: NASA's Research and Analysis programs provide the underpinning for all space research at universities. These programs support the development of new instruments and mission concepts, the analysis of data from ongoing missions, the analysis of data from completed missions, the development of theoretical ideas and models, and the education of graduate students. The July 1984

Report of NASA's Space and Earth Science Advisory Committee on Research and Analysis in Space and Earth Sciences said, "It cannot be emphasized too strongly that the quality of NASA's scientific program and the return that the country receives from its investment in space missions, directly depends upon the effectiveness, the health, and the vitality of the Research and Analysis Program."

The funding for Research and Analysis has not kept pace with inflation, nor with the growing breadth of scientific disciplines involved in the space program. Indeed, a recent analysis by the NASA Space and Earth Sciences Advisory Committee reveals a steady decline, in adjusted dollars, of about 3% per year in space science R&A programs since the late 1960's. The Research and Analysis portion of the budget for the Office of Space Science and Applications must be funded to recover some of this loss and to provide real growth in the level of research. Research and Analysis activities should be given a priority commensurate with that of the flight programs.

SOLUTIONS TO THE LONG-TERM PROBLEMS

Several panels have issued recommendations for addressing these long-term problems.

--The Space and Earth Sciences Advisory Committee has recommended a $30M increase in Research & Analysis to alleviate the problems in these program areas.

--The July 1983 Report of the NASA-University Relations Study Group states that an $11M annual budget is required to upgrade university laboratory equipment. That same report recommends that NASA initiate a graduate fellowship program that will grow after four years to support 200 students. The cost of this program would be approximately $4M per year. (As indicated above, NASA started a new component of its Graduate Student Researchers program in FY 1985, which responds in part of this recommendation.)

--The NASA Advisory Council Shuttle Science Working Group Report (September, 1984), recommends a sustained program of $25M a year to provide essential, frequent flight opportunities on Shuttle. NASA representatives have stated that the proposed FY 1986 budget includes about $3M for this purpose.

CONCLUSION

The Space Science Working Group, is seriously concerned about the long-term effects of these short-term budgetary decisions on the research and training capability of our space science programs. The continuing erosion in U.S. basic space science research represents a loss of investment in our nation's future. Scientific programs and the highly-trained cadre of scientists, which we believe to be important to the future of our nation, take many years to build.

We realize that current fiscal exigencies may require that any solutions to these problems be postponed until after FY 1986. However, we do not believe that it is wise to wait until a crisis is fully upon us before taking corrective measures; by then it will take many years to recover. We urge NASA and the Congress to consider these fundamental deficiencies in the budget, and to begin planning a long-term solution now.

Appendix: Analysis of the Proposed FY 1986 NASA Space Science Budget

APPENDIX: ANALYSIS OF PROPOSED FY 1986 NASA SPACE SCIENCE BUDGET

PHYSICS AND ASTRONOMY

The overall Physics and Astronomy budget of $630.4M decreases by $46.8M from the FY 1985 level. This is due to the planned decrease in funding for the two major observatory programs Hubble Space Telescope (HST) and Gamma Ray Observatory (GRO), which are now past their peak development phase and are nearing launch (in 1986 and 1988, respectively). The combined decrease for these two programs is $97.1M so that the remaining portions of the Physics and Astronomy budget have increased by $50.3M, which is approximately a 7% increase over FY 1985. The largest part of this increase is for two projects: the Solar Optical Telescope (SOT) ($20.2M), and for HST instrument refurbishment and operations ($13.3M increase). Thus the bulk of the Physics and Astronomy program remains at funding levels which are nearly constant, or at most increased by inflation, from their FY 1985 levels. The following paragraphs summarize the proposed budget for the remaining parts of the Physics and Astronomy program; a budget table is included on pages 6-7.

SHUTTLE/SPACELAB PAYLOAD DEVELOPMENT AND MISSION MANAGEMENT: These programs are increased by $9.9M over their FY 1985 values in addition to a $20M increase for the previously approved Solar Optical Telescope. Two major Shuttle flight programs are planned for FY 1986: the ASTRO-1 mission for March 1986, and Spacelab 3 to fly later in the year. Other Shuttle missions are under development, and it is expected that a portion of the budget increase in this area will respond to the need by the scientific community for a substantially increased program of low-cost Shuttle experiment opportunities such as represented by the Spartan program.

EXPLORER DEVELOPMENT: These programs are increased $3.3M, which is 6% over their FY 1985 values. This will support continued development on two US Explorer-class missions: COBE for cosmic microwave background studies, and EUVE for extreme ultraviolet observations. NASA will deliver a high resolution x-ray detector to be included on the German x-ray telescope ROSAT scheduled for a shuttle launch in 1987. A re-flight of the Long Duration Exposure Facility (LDEF) for cosmic ray studies is also planned for 1986. No new starts in the Explorer program are planned for FY 1986 although definition studies will continue on possible future Explorers such as the X-Ray Timing Explorer (XTE) and the Far Ultraviolet Spectroscopy Explorer (FUSE).

MISSION OPERATIONS AND DATA ANALYSIS: These programs are increased by $10.8M over their FY 1985 values, largely for increased costs for HST as the launch date in 1986 approaches. Much of this increase is for the development of second generation instruments for HST. The extended mission for the Solar Maximum Mission (SMM) also accounts for a $2.8M increase, while support for the High Energy Astronomy Observatory (HEAO) and Explorer data analysis programs is decreased.

RESEARCH AND ANALYSIS (R&A): This budget is increased by $2.4M over FY 1985, a 6% increase that is essentially constant funding in real dollars. The modest increase in the R&A line is welcome but will be absorbed largely by the definition studies for the Gravity Probe-B mission. The new Astrophysics theory program initiated last year will be maintained at the current level. The Advanced Technology Development (ATD) program will provide minimal support for the definition and design studies for the highest priority candidate future astrophysics observatory missions, the Advanced X-Ray Astrophysics Facility (AXAF) and the

Space Infrared Telescope Facility (SIRTF). Both missions have gone through the instrument selection phase but low funding levels are presently only sufficient for Phase B definition studies for AXAF.

SUBORBITAL PROGRAMS: These programs, vital for the development of future space missions. are increased by $3.7M. or approximately for inflation. The anticipated number of balloon flights will be increased. and the sounding rocket program will continue to be phased into the Spartan program with two new Spartan experiment development efforts to be initiated.

PLANETARY EXPLORATION

The requested Planetary Exploration budget of $359M represents a continuation of ongoing programs that were started in previous years, with no new initiatives or program augmentations. The increase of $68.1M over the FY 1985 budget results largely from the normal spending histories of mission projects, which reach peak spending levels several years after a project starts. The major budget changes from last year are in the Venus Radar Mapper (VRM) and the Mars Observer (MGCO). both of which are approaching peak spending years. Galileo development is diminishing as it and approaches launch in 1986. Increases in the Mission Operations and Data Analysis (MO&DA) line largely reflect the preparation of the Voyager mission for the Neptune encounter as well as the start of Galileo mission operations. The Planetary Research and Analysis program continues at approximately constant dollars. which is a 4% decrease adjusted for nominal inflation.

The requested budget is a gratifying reflection of the Administration's commitment to rebuild the U.S. Planetary Exploration program back to a vigorous level. This is particularly evident in Research and Analysis (R&A). The proposed R&A budget is a welcome change from recent crisis years. In each of which substantial decreases were proposed; this year R&A will suffer a modest decrease due to inflation.

The following paragraphs briefly analyze the various major parts of the Planetary Exploration budget, their condition in the proposed budget, and the contributions that these programs make to the nation's overall space science effort.

GALILEO DEVELOPMENT: This project shows a decrease of $16.4M as the development stage draws to completion. Galileo was originally to be launched in 1982, but was delayed four years by development problems, including the absence of an adequate shuttle-based launch capability. The implementation of the Galileo mission to Jupiter marks the start of a new and intensive phase of outer-planets investigation.

VENUS RADAR MAPPER: The Venus Radar Mapper (VRM) increases $19.5M as it enters the third year of development. Due to be launched in 1988. VRM will carry out a detailed geological mapping of Venus' surface. This is an essential step in NASA's detailed study of the triad of terrestrial planets: Venus, Earth, and Mars. Knowledge obtained through these investigations will greatly advance our understanding of the behavior and evolution of terrestrial planets, including Earth.

MARS OBSERVER: The Mars Geochemical and Climatological Orbiter is the first in the sequence of "Observers", a class of relatively low-cost, frequently-launched planetary spacecraft that forms part of the core of the ongoing NASA planetary exploration program. The $30.8M increase in this line reflects continuation of an orderly and controlled development sequence for this mission. This mission will carry out important global investigations of Mars, and is part of the detailed study of the triad of terrestrial planets.

ULYSSES (ISPM): The International Solar-Polar Mission is a "non-planetary" project which is being managed by the NASA planetary division in order to capitalize on the deep-space operations expertise which is unique to that division. Ulysses is being carried out in collaboration with the European Space Agency; it will be the first spacecraft to carry scientific instruments to high heliospheric latitudes, well away from the ecliptic plane and will make measurements critical to our understanding of the three-dimensional structure of interplanetary space. The $3.4M decrease in that line follows the expected evolution of that project.

MISSION OPERATIONS AND DATA ANALYSIS (MO&DA): This line supports the in-flight operation and data analysis of ongoing planetary missions. The increase of $36.2M reflects the activities needed to accommodate the Voyager encounters with Uranus and Neptune, the onset of Galileo operations, and the other continuing mission operations. including Pioneer and Ulysses. The MO&DA activity is a basic part of the infrastructure needed to support deep-space missions and other planetary projects.

RESEARCH AND ANALYSIS (R&A): This R&A program supports basic research activities in planetary science as well as research and development, and program activities needed to plan future projects. It is from this budget line that the broad planetary research activities are supported in the nation's universities and laboratories. The proposed budget increase of $1.4M is about 2.3%, well below the recently increased costs of carrying out these activities.

ENVIRONMENTAL AND SOLID EARTH OBSERVATIONS PROGRAMS

The Environmental and Solid Earth Observations programs have a number of positive features in the proposed FY 1986 budget. It is gratifying to see that the Upper Atmosphere Research Satellite Mission and the Scatterometer development programs follow their nominal timelines. Inflationary increases are provided for each of the Research and Analysis lines, and indeed in the case of R&A for Solid Earth Observations an augmentation of $4.5M (28%) is proposed. Although no further erosion has occurred this year, it should be noted that some of these R&A lines have still not been returned to funding levels of previous years. A substantial increase is also proposed for Mission Operations & Data Analysis (MO&DA) to accommodate recent successful flight missions such as the Active Magnetospheric Particle Tracer Explorer (AMPTE). Ongoing Shuttle payloads will proceed on schedule with the proposed funding.

SOLID EARTH OBSERVATIONS

The Solid Earth Observations program is budgeted at $74.9M, an increase of $17.3M or 30% over the FY 1985 level. Much of this increase is in the Shuttle/Spacelab payloads line and will go toward advanced spectrometer technology development and study of the next generation of Shuttle Imaging Radar (SIR-C). The Geodynamics Program, including the Crustal Dynamics project, laser network operations, and research and technique development, is budgeted at 6% over FY 1985, an inflationary increase. The R&A line which supports land remote sensing is increased by 29%, a much needed supplement. This area has long been recognized as being one where NASA needs to develop a stronger scientific base.

ENVIRONMENTAL OBSERVATIONS

The Environmental Observations program is budgeted at $317.5M, an increase of 30% over FY 1985 that reflects the expected growth in the Upper Atmosphere Research Satellite and Scatterometer programs. The R&A lines show modest growth of approximately 6% reflecting inflation over the year. Extended mission operations show a modest growth to accommodate the operations and data analysis of recent successful flight missions such as Nimbus-7, the Solar Mesosphere Explorer (SME), and the International Sun-Earth Explorers. The Tethered Satellite Payloads line shows $15M growth in anticipation of instrument development following the initial payload selection.

The principal difficulty for this program area is the lack of new starts. The Space and Earth Science Advisory Committee recommended two new starts in FY 1986, the Ocean Topography Experiment (TOPEX) and the International Solar Terrestrial Program (ISTP), and neither were included in the proposed budget. The problem is compounded by inadequate Advanced Technology Development (ATD) funds for these programs, which will make the orderly study of these missions and the maintenance of their scientific teams difficult. TOPEX's ATD will be funded in the Oceanic Processes Research and Analysis line and ISTP's in the Space Physics Research and Analysis line.

SPACE SCIENCE IN THE FY 1986 NASA BUDGET
(in millions of dollars)

	1982	a/ 1983	1984	1985	Proposed 1986
Total NASA	6020.0	6836.4	7217.5	7510.7	7886.0
Total Research & Development	4772.0	1902.5	2028.5	2422.6	2881.8
Space Flight, Control and Data Communications		3633.0	3775.3	3601.8	3509.9
Total Space Science & Applications	896.2	1034.1	1157.0	1404.5	1613.2
Space Station	-	-	(21.9)	150.0	230.0
Total Physics & Astronomy	322.4	470.3	567.6	677.2	630.4
Space Telescope Development	121.5	182.5	195.6	195.0	127.8
Gamma Ray Observatory	8.0	34.5	85.9	117.2	87.3
Shuttle/Spacelab	47.6	81.0	80.9	105.4	135.5
Explorer Development	33.3	34.3	48.7	51.9	55.2
Mission Operations & Data Analysis	45.3	61.4	68.1	109.1	119.9
Research & Analysis	22.9	28.5	35.8	39.9	42.3
Suborbital	43.8	48.1	52.3	58.7	62.4
Total Planetary Exploration	210.0	186.4	217.4	290.9	359.0
Galileo	115.7	91.6	79.5	56.1	39.7
Venus Radar Mapper	-	-	29.0	92.5	112.0
International Solar Polar	5.0	6.0	6.0	9.0	5.6
Mars Geoscience/ Climatology Orbiter		-	-	13.0	43.8
Mission Operations & Data Analysis	42.6	38.5	43.4	58.8	95.0
Research & Analysis	46.7	50.3	59.5	61.5	62.9
Total Life Sciences	39.5	55.7	58.0	62.3	72.0
Flight Experiments	14.0	24.0	23.0	27.1	33.4
Research & Analysis	25.5	31.7	35.0	35.2	38.6
Total Solid Earth Observations	149.4	128.9	76.4	57.6	74.9
Landsat-4	81.9	58.4	16.8	-	-
Shuttle/Spacelab	12.3	14.5	17.0	12.1	23.1
Geodynamics	22.9	28.1	28.0	29.9	31.7
Research & Analysis	15.5	11.8	14.6	15.6	20.1

SPACE SCIENCE IN THE FY 1986 NASA BUDGET (continued)
(in millions of dollars)

	1982	1983	1984	1985	Proposed 1986
Total Environmental Observations	133.0	156.9	162.0	212.7	317.5
Total Research & Analysis	71.8	86.4	90.8	95.6	101.7
Upper Atmosphere	20.5	27.7	28.4	31.0	33.0
Atmosphere dynamics and Radiation R&A	22.3	26.5	27.4	28.5	30.3
Ocean processes	16.9	17.0	18.2	19.4	20.6
Space Physics	12.1	15.2	16.8	16.7	17.8
Shuttle/Spacelab	4.1	3.7	7.6	7.8	5.6
Operational Sat. Improv.	6.0	6.0	0.6	-	-
Earth radiation budget	24.0	24.0	15.5	8.1	2.0
Extended mission ops	16.1	22.8	27.4	29.5	37.0
Interdisciplinary R&A	-	-	-	1.0	1.0
Tethered Satellite Payloads	-	-	-	3.0	4.5
Scatterometer	-	-	-	12.0	31.7
Upper Atmos Research Satel.	6.0	14.0	20.0	55.7	134.0

a/ Shown on a comparative basis with the budget structure changes instituted in FY 1984.

PREPARED STATEMENT OF MARSHA FREEMAN

Senator LEAHY. Marsha Freeman, Washington Representative, Fusion Energy Foundation. Somehow, I didn't expect you.

Mr. KOKINDA. Marsha cannot be here.

Senator LEAHY. We will put Ms. Freeman's full statement into the record.

[The statement follows:]

STATEMENT OF MARSHA FREEMAN, FUSION ENERGY FOUNDATION

Mr. Chairman and members of the subcommittee, thank you for this opportunity for the Fusion Energy Foundation to present its views and concerns regarding the fiscal year 1986 budget request for the National Aeronautics and Space Administration.

The foundation is a not-for-profit organization with 20,000 members nationwide. Its magazine, Fusion, has led a fight for advancement in all fields of science and technology, with continued emphasis on the importance of our space programs.

In deliberating on the NASA budget, few have raised any objections to funding the space program, per se. The action by the House Budget Committee and the request by the administration have been shaped almost entirely by fears related to the budget deficit.

Although the growing deficit does indicate that there is something fundamentally wrong with the state of the U.S. economy, it is a symptom, not a cause. The actual cause of the deficit is the accelerating collapse of the productive industrial and agricultural foundation of the economy, combined with nothing less than usurious interest rates. The solution to this problem is precisely an increase in the kind of research and development work that will create more productive technologies for our economy, not cutbacks that seem expedient.

The only way to return the United States to a period of real economic growth is to accelerate the rate at which new technologies are developed and to create the environment and credit conditions where these new technologies can quickly be absorbed by industry.

Unlike many other expenditures in the Federal budget, the amount of money NASA spends that leads to breakthroughs in science and development in technology is directly related to the rate at which new, more productive technologies are available. These increases in productivity lead to job creation and profit in basic industry.

The foundation in science and engineering developed during the Apollo period in the 1960's are still providing the Nation with revolutionary new breakthroughs, such as the artificial heart.

Studies done by Chase Econometrics and others of the economic impact of NASA spending in the 1960's estimated conservatively that at least $10 was returned to the economy in real economic activity for every $1 of tax money invested. I can think of no bandaid or makeshift economic palliative that can have that kind of qualitative and long-lasting positive impact on the Nation's economy.

If the only reason why we are cutting space station funding, for example, is because of the deficit, then we are cutting off our noses to spite our faces. In addition to irritating our allies, who have indicated their willingness to spend billions of their own dollars on this project, stretching out the timetable for completing the space station will only increase the total cost of the program. So much for "saving money."

AN ECONOMIC CATASTROPHE

A recent in-depth study of the United States and world economy by the weekly Executive Intelligence Review has shown not only that there is no recovery in the United States at the current time, but also that basic industry has been on a dangerous decline for the past 10 years.

In no major industrial category, including energy, has there been any significant real growth. Basic steel production fell by nearly 50 percent between 1972 and 1983, from 120 million metric tons to just over 67 million metric tons. Energy consumption per million persons fell from 86.22 trillion kilocalories to 77.63 over the same period of time.

The rate of decline has been similar for cement, machine tools, tractors, automobiles, and other basic industrial categories.

Tax dollars that are drained off to pay the usurious interest on the Federal debt are what causes a spiraling deficit. Each percentage point increase in Federal Reserve Chairman Paul Volcker's interest rate throws more people out of work. They stop paying taxes and end up on the public dole.

The Government ends up with a shrinking tax base and more and more commitments for unemployment insurance, welfare, food stamps, and the like. To meet these payment requirements, the Government borrows money—at Volcker's interest rate. At the current time, the combined public and private debt of the United States could never actually be paid.

This combined indebtedness is about $8 trillion. Quite a ghastly sum, and considerably more than our entire annual gross national product. Serious changes in domestic economic policy are required. A simple 1-year moratorium on Federal debt payments alone would wipe out this year's deficit, for example.

Then, from there, the Government must get back into the business of creating a low-interest rate, high-growth environment for business and industry. Investment in national research and development programs should become the centerpiece for providing tomorrow's economic growth. Without constantly increasing the productivity of industry and agriculture, the Nation cannot maintain the rate of growth that keeps it a world leader.

If the spinoffs from the 1960's space nuclear power projects had been commercialized, for example, this country would lead the world in high-temperature nuclear reactors, fast breeder reactors, and other frontier energy technologies. The current triagency SP-100 Program will continue NASA's role in developing improved energy technologies. With a progrowth national credit policy, rather than the dictates of Paul Volcker and the International Monetary Fund, NASA could get the U.S. nuclear and overall energy infrastructure back on its feet.

New materials that will be created both in space-based processing and manufacturing and also in the application of improved technology here on Earth, will open the door to higher temperature and more efficient processing methods in industry. The Three M Co. reports that the work they have done in readying their experiments to fly on the Space Shuttle has already led to better methods of research in their existing laboratories.

SETTING NATIONAL PRIORITIES

In addition to all the practical benefits of the NASA programs, the civilian space program allows man to dream of becoming more than he thought he could be. It gives children a motivation to learn science and sets goals for their future. It creates an environment of technological optimism in the country that allows for new discoveries.

President Reagan has created a National Space Commission to "devise an aggressive space agenda to carry America into the 21st century." In 1969, President Nixon created a similar task group after the first lunar landing. In the end, however, it was not his task group that set the agenda for the post-Apollo space era; it was the dictates of the Budget Office.

We have a second opportunity now to plan to embark on those same goals for the next quarter century of our space program—a space station, lunar colonization, a manned mission to Mars, and unmanned probes to learn more about how the solar system and the universe work and were created.

This year's budget deliberations should take place within that perspective. This time around it is surely possible that other nations will make the commitments the United States refuses to make and that their economies will reap the benefits of investment in the future technologies and scientific understanding that would keep this Nation a world leader.

STATEMENT OF RONALD KOKINDA, MEMBER, FUSION ENERGY FOUNDATION, WASHINGTON OFFICE

Mr. KOKINDA. I will direct my global remarks to a different aspect. Let me say first the Fusion Energy Foundation supports the original administration request for NASA and we would recommend a special augmentation for the space station so that it would not be delayed.

Senator LEAHY. Ms. Freeman's statement refers to Fusion Magazine. Is that the one that is sold in airports?

Mr. KOKINDA. Yes it is.

Senator LEAHY. That is like at National Airport, the group that stands down near U.S. Air——

Mr. KOKINDA [interposing]. That is correct.

Senator LEAHY. That is the group that hollers obscenities at me periodically when I walk by—"Nuke the Whale"? I just want to make sure we were dealing with a high-class outfit.

Go ahead, sir.

Mr. KOKINDA. I think anyone who reads our material can see it is high class. No question about that.

Senator LEAHY. I never did get a chance to read it after having my children along, having them have to listen to some of the things hollered at me as I went by, I somehow didn't want to stop and read. Please feel free to go ahead.

Mr. KOKINDA. Maybe the person who organized it didn't like your policies. I don't know.

Senator LEAHY. They showed great respect both to my wife and children.

Please, I want to hear your side.

Mr. KOKINDA. OK.

Senator LEAHY. I do not want you to think in any way I was influenced by what happened out there.

Mr. KOKINDA. Let me just preface my remarks by saying not only would we support that type of orientation with NASA and the space station, but we, of course, support a major increase in the future research budget. We think the Defense budget in the order of 6 percent, 7 percent is what is required, and especially strongly support the strategic defense initiative; in spending for infrastructure programs in the United States, health and social services.

Now, I say this to address the question of how can we say this and what does this and other committees face in terms of the budget process? In other words, how can we make these type of recommendations across the board?

The premise, I think, most people find themselves in, which is the problem, is that the budget deficit debate is a fraud. That is the problem itself. That, in fact, the emperor has no clothes. What we face is a situation where a deficit has been created not by Government spending but caused by tax and credit policies of the last 25, 25 years. Where investment has been taken away from agriculture, from technological scientific innovation, and this process reached crisis—this process is what we call the postindustrial society—and this reached crisis proportions in 1979 with Paul Volcker's interest rate policy.

I have brought before the committee today the effects, a study that was done by the Weekly Journal Executive Intelligence Review on a comparison of key sectors of the economy between the United States and the Soviet Union over the last 10 years, which I will leave for the committee. But we have in critical areas, such as steel, a 50-percent decline over the last 10 years.

We have reached an area where this type of decline in basic agriculture and basic industries created a national security crisis. If we look at the budget deficit, if we look at the interest payment alone, that is equivalent now to the size of the deficit itself. So what the programs like the strategic defense initiatives, the NASA programs, these type of things which we are putting a science driver on the economy represent a means to increase productivity across the board and generate the production of real wealth. This is what we used to call the American system of economics where we look at the physical base of the economy as the primary criterion for judging what we had to do in order to get the economy to grow, and to the extent we have gotten away from that with the postindustrial drift over the last 20 years, we have looked at the monetary accounting side of the equation, and the monetary accounting side of the equation is best epitomized by what is going on in Africa today with the monetary accounting policies of the Interatnational Monetary Fund.

You have got a situation where millions of people are going to die because of IMF policies. You have got a situation where you have epidemic diseases and you have got a situation where because of the decline in health standards and such things here in the United States, the potential for epidemics and endemics reaching the United States itself, new diseases and problems that are being generated in the African situation.

So what we are saying and recommending these type of budget increases virtually across the board, if you will, is to say that what we have to carry out and what we have to look at in terms of the budget and in terms of financing is the physical side of the economy, what investments have to be made to ensure we grow down the road.

This area of NASA—fusion, SDI, infrastructure—are crucial parameters of economic growth. So I think while our recommendations in terms of what we support in the programs under the purview of this specific committee, I think the larger question of what is going on with the budget deficit debate and how we get out of that in order to get the economy growing in real terms again is what we all have to address ourselves to.

Senator LEAHY. Thank you.

STATEMENT OF GORDON A. SMITH, VICE PRESIDENT—PUBLIC POLICY, AND NORRIS J. KRONE, JR., CHAIRMAN, AIAA ADVISORY COMMITTEE ON NATIONAL AERONAUTICS, AMERICAN INSTITUTE OF AERONAUTICS AND ASTRONAUTICS

Senator LEAHY. Dr. Gordon Smith, vice president—public policy, and Dr. Norris J. Krone, Jr., the chairman, AIAA Advisory Committee on National Aeronautics, American Institute of Aeronautics and Astronautics.

Mr. SMITH. I would just like to summarize our testimony here today, and by way of introduction, the American Institute of Aeronatuics and Astronautics is a nonprofit technical society with an international membership of over 35,000 professionals representing the aerospace industry, academia, and government.

One of our principal activities is to apply the capabilities of our membership in areas of national concern where we think we can contribute.

NASA space and aeronautics programs are just such areas and, consequently, we appreciate the opportunity to be here today. Before briefly addressing the proposed NASA budget, I would like to make one general observation. We strongly believe and often stated that increased Federal investment in research and technology are among the most productive steps that the Government can take to promote future national economic vitality.

In this regard, NASA, which supports the development of frontier technologies in both space and aviation, is one of the foremost contributors to our Nation's well-being. Therefore, the AIAA is opposed to a freeze on NASA's budget.

I would like to turn to a few specifics of the NASA fiscal 1986 budget. For instance, we believe that a permanent facility in the unique environment of space will speed the process of discovery and invention. The AIAA recommends that the proposed funding for space station studies be sustained.

In the area of space transportation. we were gratified last year that Congress acted to preserve the option for a fifth orbiter. We strongly urge Congress to restore the necessary funding to retain the viable production capability for another orbiter.

We are also glad to see included as a new start this year the orbiting maneuvering vehicle, a system that the AIAA first advocated in 1973.

We are pleased to see an increase in the proposed science and applications budget, but regret the lack of new starts in this vital area. Several important missions recommended by the National Academy of Sciences have been waiting 5 to 10 years for new starts.

Overall, we think that NASA's proposed space and technology program is a good one, but wish to point out that in the area of propulsion technology, there is no budget allocation to increase the thrust level of the Space Shuttle main engine.

Congressional support last year for the full-scale ACTS Program ensured the continued growth of the communications industry across the board and helped to preserve continued U.S. leadership in the field. It would be most regrettable to diminish the momentum now established in that program.

We were very pleased to see NASA establish the Office of Commercial Programs and are encouraged to see a very substantial increase over last year's budget for this important program.

Mr. Chairman, I would like to turn to my colleague, Dr. Norris Krone, to address the aeronautics portion of the NASA budget.

Senator LEAHY. Dr. Krone, glad to have you here.

STATEMENT OF DR. KRONE

Dr. KRONE. Thank you. Glad to be here, and I appreciate this opportunity. Our aeronautics message——

Senator LEAHY. I hope everybody who gets a chance to be here this afternoon appreciates the opportunity. I do.

Dr. KRONE. The aeronautics message is very simple. That is, the aeronautics industry and the business of aeronautics in this country in general is on the decline. It is a decline that is similar to the steel industry and the shipbuilding industry a couple of decades ago and, to some degree, the auto industry of more recent years.

Evidence of this, a number of indicators. There was a 22-percent drop in civil aviation, civil aircraft sales between 1983 and 1984. As I say, there are other indicators.

The point is, I guess, that we still are dominating in aeronautics in the world. There is really little doubt of that. For example, we had a $10.2 billion positive balance of trade last year. Incidentally, it was $12 billion the year before in aeronautics. That also indicates a bit of a decline.

Senator LEAHY. I am sorry; would you give me that figure again?

Dr. KRONE. The figure last year in 1984, a $10.2 billion positive balance of trade in the aeronautics business.

Senator LEAHY. In other words, we were selling that much more than we were buying.

Dr. KRONE. $10.2 billion worth of exports, as opposed to imports net.

Senator LEAHY. I misunderstood you. I thought you said it was the other way around. Who could possibly be competing against us?

Dr. KRONE. At the moment, there are quite a few competitors, but we are, in fact——

Senator LEAHY [interposing]. I understand. I am sorry, I just misunderstood you. I heard it just the opposite the way you said it. I was going to say, boy, that is a new one. Who are our major competitors, incidentally?

Dr. KRONE. The French, the Germans are coming on, the Air Bus, obviously; a consortium of European manufacturers. Even such countries as Brazil, Brazilia.

If you look at the commuter market in the aircraft that are being flown—the Canadians—the commuter market is being dominated other than by American manufacturers.

Senator LEAHY. Living up in New England, where you do end up with a lot of commuter airlines, I have noticed invariably it is either a German or a Canadian plane, usually Canadian. I am sorry, I went off the subject. I won't take that from your time.

Dr. KRONE. We believe that this dominance that we are enjoying at this time is to a large degree a direct result of the NASA programs of the 1940's, the 1950's, and the 1960's. The 1970's and on into the 1980's, the aeronautics aspects of the NASA budget have been degraded considerably.

Turning to the current subject, the 1986 budget, our position is the 7.9 percent of the NASA budget that is aeronautics, of the President's budget, is a rather weaker effort in aeronautics. Anemic is another way of putting that. Even if the aeronautics budget is not touched with the freeze, the aeronautics portion would still only be 8.2 percent.

We say this in light of what our projected performance increases in aeronautics over the next 10 years. There is projected, for example, 50 percent increase in range possibility. They project 25 to 50 percent increases—decreases; I am sorry—in life-cycle costs or operating costs, overall operating costs of aircraft.

Our committee, therefore, recommended increases. I can name five, as a matter of fact, that we picked out, areas where there is significant opportunity. I won't take the time to go through those. Wind tunnel testing is a good example. From personal experience, it is very tough to get into at least some of the better NASA wind tunnels—18-month to 2-year delays. Wind tunnels generally run at 40-hour-a-week business as usual pace with just considerable amount of activity that could be put into them or programs that could be included if, in fact, there was a greater availability.

Senator LEAHY. I assume there is no physical reason it has to be limited to a 40-hour week.

Dr. KRONE. No, sir.

Senator LEAHY. We are talking about personnel. It is not something you have to close down and wait a certain amount of time before you open it back up.

Dr. KRONE. That is not the reason. It is strictly a resources problem. Rotorcraft, engine hot section work, advanced materials and hypersonics for the future.

In summary, I would like to say there is projected to be a $525 billion—approximately $525 billion—aeronautics business, aeronautics, aircraft, helicopters, missiles, business worldwide in the next 10 years or so. We believe there is a direct cause and effect as to our ability to capture a dominant portion of that market which is to a large degree dependent upon the aeronautics program that NASA is sponsoring. Therefore, we recommend we actually increase that program. Thank you very much.

Senator LEAHY. Thank you very much. Gentlemen, Senator Garn or I may have questions for the record. I appreciate what you said.

Your comment, Dr. Krone, on the utilization of some of these facilities is one I find very significant, and they cost so much to make in the first place. They ought to be available.

I am sure some of the commercial applicants, if they were told they could move up 9 or 10 months, but they would have to do their testing between the hours of 10 o'clock and 4 o'clock, they would do it.

Dr. KRONE. Absolutely.

Senator LEAHY. The slight extra cost it might be to them, the amount they would save by the speedup, I would imagine, would be infinitesimal.

Dr. KRONE. Correct.

Senator LEAHY. In my own State, some of the high tech industry might be able to use those night hours and weekends. We have been able to get so much out of it. That is a very interesting point. It certainly should not be a case where we are trying to save it.

Dr. KRONE. This is personal experience. Personal experience in the past jobs that I have had, we have actually not done things, and we have not gone through the wind tunnel testing phase adequately just strictly because of the lack of wind tunnel availability. I have forgotten one thing I was going to say relative to the overall economic situation. In aeronautics now, we believe a penny spent today is really returned handsomely in dollars, in not the long-term future but relative near future.

Senator LEAHY. Thank you very much.

STATEMENT OF STEVEN H. FLAJSER AND RUSSELL DREW ON BEHALF OF THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.

Senator LEAHY. Dr. Steven H. Flajser and Dr. Russell C. Drew on behalf of the Insutute of Electrical and Electronics Engineers, Inc.

Dr. Flajser, how badly did I mispronounce your name? It is not a name I have come across all that often before. You probably have on at least one occasion a year somebody mispells it.

Mr. FLAJSER. I never hit that good a number. [Laughter.]

Senator LEAHY. Dr. Drew.

Mr. DREW. Mr. Chairman, you will insert our formal statement?

Senator LEAHY. Yes, in full, at the close of your oral testimony.

Mr. DREW. We will summarize our statement briefly. We are, indeed, pleased to be here and have the opportunity to present some views. On behalf of the Institute of Electrical and Electronics Engineers, we are also a professional, technical society with members that work across a broad span of American industry. We have a transnational organization, so we have international membership as well. We are the world's largest professional technical society, with over 260,000 members worldwide.

We have a very special interest in the health of science and technology in the United States, and we would like to emphasize some of our concerns and give you some perspective from that standpoint today.

In the order, I think, of our testimony, I would like to ask Dr. Flajser to address some of the NASA issues.

Mr. FLAJSER. Thank you, Mr. Chairman. On balance, the proposed fiscal year 1986 NASA budget, particularly under the current budget circumstances, we believe, is a very good one and represents essentially the first test of the administration's commitment to provide NASA 1 percent real growth.

I recall several years ago NASA was also promised and received the commitment for essentially frozen budgets, but adjusted for inflation, essentially constant dollar level budgets.

This commitment was to provide what people believed was needed stability in programs such as programs that were phasing out, new programs would be coming in, and the technological base would be maintained.

It is fair to say that that earlier commitment, which was mainly by the Congress to NASA, has not been maintained, and, as a result, NASA has suffered from a budget point of view. If that constant dollar level budget commitment had been maintained over the past decade or so, NASA's budget today would be $9.5 billion rather than $7.9 billion requested.

There are three reasons why we propose that the NASA budget request is a good one and worthy of full support by the subcommittee. First, we believe it is balanced across a wide range of disciplines in program areas, from space transportation, space science, applications, technology development programs, and aeronautics. The budget supports the Space Shuttle Program and increased flight rates over the next few years. We believe the Shuttle is our main means to access of the space environment and the integrity of that system from questions involving engineering as well as questions involving economics is critical if we are going to maintain U.S. space leadership in the civilian area.

In space science and applications, the budget request we believe is quite limited in that it does not request new starts. However, under the circumstances of tight budgets, it is understandable. We believe that deferrals of existing programs and lack of new initiatives which existed in the 1970's severely damaged space science, and we hope as a result of the past congressional efforts over the last couple of years, the space science program will maintain its health and vitality.

In the applications area, two programs of particular interest, materiels processing and communications initiatives, in particular the ACTF Program, Advanced Technology Communications Satellite Program, are of particular interest to our national economy.

IEEE fully supports the Science Application Program.

The second reason why we support the budget is that we believe it continues to support U.S. technological base, and the main example of that is the space station initiative. A total of $230 billion is requested in this area and IEEE supports the program and the congressional effort, particularly by this subcommittee, to incorporate advanced robotics and automation in that development.

Recently earlier this year, IEEE held a press conference on U.S. civilian space policy and proposed five points for space station development. These are listed in the testimony. Essentially they are committed now to the development of this infrastructure; second, establish a permanent habitat for space crews; third, pursue a international cooperation where partners share on three fronts—the funding area, technology area and responsibility; fourth, mentioned previously, is advanced technologies in the remote control area; and fifth, try to stimulate new opportunities for commercial and industrial utilization of the main habitat.

IEEE recently published a book entitled, "Space Station: An Idea Whose Time Has Come." We would like to leave a copy of it for the committee's use.

I would like to close by suggesting a final reason why the budget deserves your support. The budget includes two initiatives which one might categorize as new starts. One is the oribital maneuvering vehicle and the other one is space commercialization. The Space Commercialization Program, in particular for fiscal year 1986, is not really a new start, but enhancement of activities already begun in the current fiscal year. You assuredly are aware of all the discussion in the press and elsewhere about the vast potential of space commercialization and the role NASA can play to stimulate private-sector investment and activity. We would emphasize two points. One is that its potential and, second, we would encourage NASA's active role in this area.

Other than satellite communications, what you hear with regard to vast benefits associated with materials processing, remote sensing, space infrastructure is simply potential benefits. It is not in the present.

Investments in these areas are high risk; they are very costly and it takes a long-term period of 6, perhaps 8, 10 years before they pay back to their investor. Without cooperation with Government, particularly NASA, and shared risk taking between industry and Government, these opportunities never will get out of the potential category. Fortunately, NASA, with congressional support, has cooperated and shared risk taking through joint endeavor agreements, through low-cost and free Shuttle opportunities, and I believe in a decade from now, when the potential is in the reality category, in retrospect, people will see that the joint endeavor agreements, the Shuttle flights were really instrumental and key factors in the commercial space enterprise.

Likewise, this year's Office of Commercial Programs is proposing a number of new initiatives involving shared facilities with industry as well as cooperative ventures between industry and universities in the R&D high-risk area.

NASA in these areas would assume that traditional roles of high-risk R&D and if that R&D reached the stage of potential feasibility, the private sector then would pursue it in terms of commercial activity.

So, in summary, Mr. Chairman, from my IEEE's point of view, we believe the balanced budget NASA is offering is a good one. It supports further technological leadership above and beyond than just space. And it expands NASA's activities in the commercial area.

Senator LEAHY. If we went to a freeze, as we may well do in the budget, NASA said the orbital maneuvering vehicle won't be funded in fiscal year 1987. If that happens, what important space missions are not going to be possible?

Mr. FLAJSER. I do not have a direct answer to that question, Senator Leahy. I do not recall exactly when the OMB would be operational. I believe it would be 1989. It essentially extends the capability of the Shuttle, several hundred miles or thousands, say, beyond the 250 miles it can reach right now. It would be critical for use with the space station, and I can only make a general comment. We would lose a great deal of capability both in the science and commercial areas. I do not know if Dr. Drew has any thoughts on OMV, per se.

Mr. DREW. It is a class of things rather than a single mission. There are extremely difficult decisions I think that have to be made in any of the agencies if subjected to a freeze, Senator. I guess one of the things we wanted to say is we would hope that if such measures are necessary, there will be a degree of latitude within the total provided to the agencies to make some of these tradeoffs. They are very difficult to make. I think it applies for the next agency we are going to talk to you about, NSF as well.

Senator LEAHY. We want to find out when we do have that discussion, I want to figure out how Congress can help prevent NSF from overconcentrating their research and funds at the engineering research centers.

Mr. DREW. Senator, that leads very nicely into—you are obviously well aware of the new look at the NSF in the engineering area. We support that fully. We looked at it very critically, as a matter of fact, as a rather major reorganization in the engineering effort done at the beginning of this year. We did not accept it with open arms, but after looking at it, talking with the managers and understanding a little bit more about the objectives, we support it. We are very enthusiastic supporters.

Senator LEAHY. It would be best if it could be handled at the administrative level to make sure there is not this overconcentration of funds. I prefer seeing it done at the administrative level. Obviously, otherwise it is going to be done congressionally, and it will be done congressionally, but that is not a good way of doing it. I do not like doing it that way. We are not the appropriate ones to do that.

Mr. DREW. Micromanagement probably is in all cases generally a bad thing to impose from outside an agency.

By the way, we think the engineering research centers were an excellent initiative, and with the total program we believe they have an important role and should be continued, but we are concerned, as you will notice in our testimony, we believe that the initiatives should not be at the expense of a strong research effort which is spread across the engineering schools.

Senator LEAHY. Thank you very much.

Mr. DREW. Basically, we would encourage you to provide flexibility in case budget constraints apply to the agency. We would prefer to support the full request made of the Congress this year for NSF.

Senator LEAHY. Thank you very much.

[The statement follows:]

JOINT STATEMENT OF DR. STEVEN H. FLAJSER AND DR. RUSSELL DREW, ON BEHALF OF THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS

Mr. Chairman, it is a pleasure to be here today to present IEEE's views on the NASA/NSF fiscal year 1986 budget requests.

The IEEE is the world's largest technical professional society with over 260,000 members in 157 countries. In the United States there are more than 210,000 members, working in industry, government, and academia. Our members are active in a wide range of technologies that are important to the space program and to U.S. industrial competitiveness. We, therefore, have a special interest in the future of the U.S. space program and the role that this program plays in fostering the technological advances that will continue to fuel the high technology needs of our national industrial enterprise. Our views represent an amalgam of many perspectives, many of which are not necessarily allied with NASA or its programs.

FISCAL YEAR 1986 NATIONAL AERONAUTICS AND SPACE ADMINISTRATION BUDGET

The proposed fiscal year 1986 NASA budget is, under the current budgetary circumstances, a good one. It represents the first test of the administration's commitment to provide NASA with a modest 1 percent real growth, and its overall policy to support research and development. Several years ago NASA also received a commitment, at that time from Congress, for level, constant dollar budgets. This was to provide much needed stability in programs and schedules. That commitment, as the current one, would have allowed new initiatives as older programs phased out. That earlier commitment was not maintained. If it had been, NASA's current budget would be around $9.5 billion.

Why is this budget a good one and worthy of your support?

First, the budget is balanced across a wide range of disciplines and program lines in the areas of space transportation, space science, applications, advanced technology development, and aeronautics.

The budget continues to support the Space Shuttle Program and its increased flight rates. The Shuttle is our means to the space environment and the integrity of that system, all the way from engineering to economics, is the pacing element to continued U.S. leadership in space.

In space science and applications, the budget is limited, providing no new starts. Because it is essential to maintain already approved programs in the planetary, physics and astronomy, and environmental observations areas, the lack of new starts is understandable. In recent years, Congress has corrected some of the deficiencies in the space science area. However, delay in existing programs and further deferrals of new initiatives would only reestablish the severe problems of the late 1970's.

In the applications area, the materials processing initiatives, and the communications initiatives such as the Advanced Communications Technology Satellite Program are critical to U.S. economic interests. IEEE fully supports NASA's request in space sciences and applications.

The second reason the budget deserves support is that it continues to reinvigorate our technological base. The budget provides $230 million toward a manned space station infrastructure development. The IEEE supports this program and congressional efforts to incorporate advanced robotics and automation to extend the human presence in space. IEEE recently held a press conference on U.S. civilian space policy where it proposed the following five points for space station development:

- Commit now to the development and implementation of the infrastructure needed to continue man's active involvement in space.
- Establish a permanent habitat for space crews and passengers in low-Earth orbit that will enable a full range of staging activities for future manned and unmanned missions.
- Pursue international cooperation with qualified partners on three fronts: Shared funding, technology, and responsibilities.
- Incorporate advanced remotely-controlled systems as a complement to the onboard crew.
- Foster new and innovative opportunities for commercial industrial utilization of the manned habitat and other forms.

In addition, the IEEE Press has recently published a book entitled, "The Space Station: An Idea Whose Time Has Come," a copy of which I will leave for the committee's use.

Mr. Chairman, I would like to close by suggesting a final reason why this budget deserves your support. The budget includes two important new initiatives, the orbital maneuvering vehicle [OMV] and space commercialization. The reusable OMV would extend the capability of the Space Shuttle by providing access to orbits 800 to 1,400 miles beyond the Shuttle's reach.

The space commercialization program for fiscal year 1986 is not really a new start but an enhancement of activities initiated last year. There has been much discussion concerning the vast potential of space commercialization and the role NASA can play to stimulate U.S. private-sector activity. I would emphasize potential and NASA's role.

Other than in satellite communications, the vast benefits associated with commercial uses of space are in the future. The various endeavors in remote sensing, materials processing, and space infrastructure are high risk, very costly, and long term in their payback to the investor. Without cooperation and shared risk taking between Government and industry, these opportunities will stay in the "potential" category.

Fortunately NASA, with congressional support, has cooperated and shared in the risk taking. The joint endeavor agreements and low-cost Shuttle flight opportunities NASA provides will, in retrospect, be seen as the key factors in the success of commercial space ventures.

Likewise, the Office of Commercial Programs proposes in fiscal year 1986 to undertake a number of important efforts that will open new doors of opportunity. Through expanded use of NASA facilities and equipment and the support of cooperative R&D ventures between industry and the universities, NASA would assume its traditional role in supporting high-risk R&D and, if successful, U.S. industry would continue to advance toward commercial products and services.

In summary, Mr. Chairman, the IEEE supports the NASA budget request for fiscal year 1986 with its continued emphasis upon balance, support of technological leadership, and commercialization efforts.

FISCAL YEAR 1986 NATIONAL SCIENCE FOUNDATION BUDGET

Mr. Chairman, we have also examined the proposed NSF fiscal year 1986 budget, in particular that portion which involves the Engineering Directorate. We find the budget encouraging, under current budgetary circumstances, yet strike a note of concern regarding budget allocations—and hence program support—within the traditional areas for which the NSF has played such a major role in the support of engineering research. The proposed budget represents a significant departure from the traditional role that the NSF engineering reserch efforts have played in the past. Our discipline teaches us to be creative and to constantly seek better solutions to the problems we face. We thus support and encourage the new initiatives of the Engineering Directorate. Our discipline and ability to evolve creative new applied solutions is at the same moment, however, very dependent on the traditional engineering investigatory base for its long-term nourishment.

The IEEE supports the expanded NSF Engineering Directorate effort to secure "advances . . . to help maintain U.S. technological competitiveness." In the past, the NSF engineering programs have concentrated on the basic elements of engineering research. We believe this emphasis has served the country well by providing over a generation of well-trained engineers for our country's technological infrastructure as well as support for leading-edge discoveries.

Recent years have placed new additional demands on this technological infrastructure and, hence, on the NSF to expand its engineering role. Such pressure has come from the Congress as well as the U.S. technological community itself. We are pleased that the proposed budget would provide a modest increase for engineering research and we support the action taken in raising the percent of the NSF research budget devoted to engineering research from 10.57 percent in fiscal year 1985 to 11.21 percent in fiscal year 1986 to meet the national challenge of maintaining U.S. technological competetiveness. It will require a series of continuing successive steps to bring this figure to a more realistic level if we are to fully meet the challenge.

Note, Mr. Chairman, that we used the term "additional demands" previously. The valid demands of an expanding targeted role of the NSF in areas of industrial importance through such programs as cross-disciplinary research centers and the several new divisions within the Engineering Directorate do not lessen the demands on the basic infrastructure and investigator-initiated research which has served us well these past decades. The NSF has responded to these pressures for an expanded focus in engineering research with the present restructuring of the Engineering Directorate, including the development of the Engineering Research Centers Program.

The latter program has already resulted in an initial set of six centers to address specific technological issues together with industry to help improve U.S. technological competitiveness. Each center will be funded at between $2.5 and $5 million per year. At its steady state these centers for targeted technological issues will grow to be a major fraction of the entire NSF engineering research budget. We are concerned that the ERC Program not be at the expense of modest growth of the traditional principal investigator-intiated research programs which have served us well. In fact, we would encourage further initiatives on the part of the NSF to seek sufficient funding to enable better support of such investigator-initiated research to be carried out in the single investigator/graduate student mode as well as small teams of investigators/ graduate students. The center approach fundamentally alters the present individual principal investigator/graduate student mode, with budgets typically of less than $100,000 per year—including indirect costs—to a large block grant approach. The National Research Council, in a report to the NSF proposing the establishment of the centers, took a clear position that these centers should in no way substitute for the traditional research efforts supported by the NSF, but must be as an additional program.

The wisdom of the NRC in making such a statement is perfectly clear when one recognizes that there are 296 colleges of engineering in the United States, and, once a particular center is established in a specific program, a significant fraction of the NSF resources are directed to a given institution. Engineering researchers at other institutions must be able to compete reasonably for adequate funding lest we run the risk of concentrating our Nation's engineering research activities into a very small number of colleges and universities and also diminish the opportunity to support the nontargeted investigator-initiated research whose ingenuity and creativity has stood us well. Given the tremendous demand for well-trained engineers, the need for strong research, and the tremendous shortage of faculty and graduate degreed U.S. engineers, we must carefully maintain an appropriate balance lest our policy result in the long-term loss of U.S. technological competitiveness.

The spectrum of engineering research spans the range of the very basic fundamentals to that of very applied product development. While the latter is generally recognized to be the responsibility of the private sector, what in the remainder of that spectrum should be sponsored by NSF is not as clear. The new organization is heavily oriented toward industrial problems which tend to be of rather short-term duration. It is imperative that we maintain the ability for engineering research at our Nation's colleges and universities to be concerned with the long term. It is the last place left for such a view. The IEEE urges a strong commitment be made to continuing the basic engineering research efforts along with the new organizational structure and new programs.

Mr. Chairman, this completes our formal statement and we would be pleased to attempt to answer any additional questions you might have.

STATEMENT OF FATHER T. BRYON COLLINS, SPECIAL ASSISTANT FOR FEDERAL RELATIONS, GEORGETOWN UNIVERSITY

Senator LEAHY. We are running behind on time. We will probably have to skip the next witness.

Because Father Collins is an old friend, and I graduated from Georgetown Law School and I would have to send twice as much money from the alumni fund this year if I did that. Rather than do that, Father, we are delighted to have you here, as always.

Father COLLINS. Thank you, Senator.

Senator LEAHY. Where did you get that suntan?

Father COLLINS. I had a little parish to help out on the weekends on Eastern Shore that has a good fishing. cove nearby.

Senator LEAHY. Please proceed.

Father COLLINS. I will be brief, Senator.

Senator LEAHY. Take your time.

Father COLLINS. This concerns the Space Station Program, and in analyzing the budget request in which higher education has a strong interest, the program to involve the international business community and the governmental sectors of other countries, in analyzing that, there seems to be a gap in that.

We would like to offer that the university has quite some competence in this field could be a real service to NASA, and part of our testimony shows how we have already started that program.

Georgetown, because of our interest in the international and cultural fields, will be willing to be a focal point to assist the agency. That is the sum of my presentation.

Senator LEAHY. I read that with interest. Has NASA done anything of this nature in the past? I should know, and I do not know.

Father COLLINS. Yes, they have, to answer your question. But in the presentation that NASA does since by its very nature is very scientific and very toward the engineering sectors, as the previous witnesses have said, the capability of using the resources in the business field that the universities have the opportunity of offering, they do not have a program for that. They do have a tremendous program, though, for universities in the field of engineering.

I think a few kind words could assist them. We are not asking for any money, just an orientation of the program.

Senator LEAHY. We will pass on the word.

Father COLLINS. Thank you.

STATEMENT OF RONALD V. GOBBELL, AIA, NASHVILLE, TENN,. GOBBELL, HAYS, PICKERING

Senator LEAHY. Our next witness is Ronald Gobbell, AIA, Nashville, Tenn., Gobbell, Hays, Pickering.

I have a letter from my good friend Jim Sasser, a member of this committee, who says:

> Due to conflicts in my schedule, I am unable to attend this afternoon's hearing. However, I would appreciate you noting for the record my interest in the testimony given by my constituent Ron Gobbell, an architect in Nashville, Tenn. Ron's testimony concerning the issue of liability insurance for professional engineers and contractors and repeal of asbestos abatement is of interest to me and I believe of interest to the committee. Certainly, I hope it will be given appropriate consideration and, indeed, it will be.

In fact, I am going to be seeing Senator Sasser later today, and I will be discussing it further with him. I might say that you and your State are fortunate in having Jim Sasser up here. He is a tenacious member of the Appropriations Committee. I have learned more about the interest of Tennessee than I ever expected to learn, know or anything else. He makes sure you have pretty solid representation here.

Mr. GOBBELL. Thank you, Senator. Senator Sasser is a good man.

Senator LEAHY. He certainly is.

Mr. GOBBELL. We are very pleased with his representation. What I am here to talk about today is really a national problem, not a problem unique to Tennessee in any way.

Our firm, Gobbell, Hays, Pickering, has offices in Nashville, Tenn., and in Anchorage, Alaska. We have extensive experience in the asbestos abatement field where we have completed work in over 700 facilities across the United States, ranging from Georgia to New Mexico.

Unfortunately, Vermont is not one of them, but that is not by choice. [Laughter.] And the problem we want to speak about is quite simple. Architects, engineers, contractors, industrial hygienists, et cetera, can no longer obtain adequate insurance coverage from the normal insurance carriers.

As we are all aware, the health hazards associated with asbestos is a very real hazard. It is in 30,000 school buildings; it is releasing fibers, exposing children at a very susceptible age. The funding program that has been started is just being geared up and school systems are just getting to the point where they can deal with this and the insurance companies have categorically backed out of their obligation to insure the problem.

The Attorney General's report to Congress in 1981 compounded the legal liabilities involved by saying everyone in each school system should consult good counsel and pursue lawsuits. As I said, it is a national problem, and what we are trying to do is respond to that problem in such a way that we can proceed with the business of removing this health hazard.

Obviously, as professionals—architects, engineers, industrial hygienists, and contractors—we cannot proceed with that kind of exposure without our normal risk that is implied with our insurance coverage.

Our firm particularly, which has had no claims, made all of our premiums on time, was unable to obtain airs emission insurance for the State of Alaska. We got it for the other 48.

Most architects and engineers who concentrate in the field of asbestos abatement were not able to obtain airs emission insurance at all. In the city of Memphis last week, we bid a project. Out of 15 potential contractors, only 1 was able to come up with the insurance. This removes the ability to have competitive bids.

We feel that the States which traditionally deal with insurance issues have no ability to work with the companies to solve the problem. We feel like this is beyond their abilities to come up with a consistent policy, but I would like to submit four points:

Asbestos in the building environment constitutes a very real health hazard. Point 2: Professional and general liability insurance is currently unobtainable by businesses. Point No. 3: Because insurance is unobtainable, qualified professionals will not participate in the project, nor will clients be able to proceed without undue risks. Point No. 4: To continue with the process of getting rid of the health hazard, we recommend that Congress work with the private sector, the insurers to establish limits to liability because that is the only way the insurance companies, as I understand it, will take on this challenge. They do not know what their liability is with this new issue.

I thank you for your time. If I can answer any questions, I will be happy to do so.

Senator LEAHY. I am glad you raise that. This whole asbestos thing I find frightening. Every one of us have had kids in school, and I think back to our old home in Vermont, all the asbestos around the heating pipes and all—cleaning that stuff out and everything else.

If we were to appropriate funds for asbestos cleanup, would it be used if liability insurance is not available?

Mr. GOBBELL. Without some awfully unique contracting, I do not see how that can help. EPA budgeted $45 million to release this summer which we hope is only a first step has the rules that require proper insurance for architects and contractors.

Our firm has to live very closely in how much exposure we can take. Insurance companies are saying—general liability insurance is going crazy anyway. I have a stack of articles, if anyone is interested. But they are saying we do not know what the limits are; we do not even want to get into this market. I do not see how it could continue.

Senator LEAHY. You also have got the problem, some of you may get visited by that down the road, unless you have some form of a hold harmless situation; is that correct?

Mr. GOBBELL. That is right. My attorneys tell me they cannot draw up one that good.

Senator LEAHY. I cannot think of—well, I am sure they have done a lot more of it, but just in my own days of practice, I do not know if they could either.

Mr. Chairman, that is all I have. Glad to have you back here.

Senator GARN [presiding]. First let me thank Senator Leahy for filling in for me. On the days we have public witnesses, we normally go 2 days all morning and all afternoon, and it is virtually impossible in the Senate to stay in one spot for 2 days. You have got to at least move fast enough to keep ahead of our critics and our enemies.

Senator LEAHY. I might say, Mr. Chairman, I know of no other chairman in the Senate who runs his hearings more on schedule than you do. It is one of the reasons why it is a joy to be on this subcommittee.

Senator GARN. Thank you very much for filling in. I certainly appreciate your testimony today.

NATIONAL SCIENCE FOUNDATION

STATEMENT OF WILLIAM MORRILL, PRESIDENT, MATHEMATICS POLICY RESEARCH, ON BEHALF OF CONSORTIUM OF SOCIAL SCIENCE ASSOCIATIONS

Senator GARN. Next, Mr. William Morrill, president, Mathematics Policy Research, on behalf of Consortium of Social Science Associations.

Mr. MORRILL. Thank you, Mr. Chairman. I am William Morrill, here today on behalf of the Consortium of Social Science Associations as a member of its board. That consortium represents something over 185,000 American scientists across a wide range of social and behavior science disciplines. I also happen to lead an organization called Mathematics Policy Research which does apply social science research.

I would like to file my full statement for the record and just briefly summarize its main points, if I might.

What we are here to support is the NSF 1986 budget as it applies to the social and behavioral science field as it was submitted to you. In that budget, there are several categories which provide support to the social and behavioral sciences that are increases proposed in that budget, and we think will warrant the NSF's support in these fields often is the exclusive or dominant support for the research in those categories and those are increased this year. They are still below the 1980 levels in real dollars.

These increases are in particular areas of economics where, though, that field is often the subject of some criticism about the vitality of the macroeconomic level. It seems clear that a strong economy and research about it is critical to the growth of this society and important contributions are made in a whole range of both public and private decisions by the economic research that has and continues to be done.

Similarly, a large increase is provided in the area of geography, which is a new field demonstrating increasing intellectual vitality and having important applications in terms of its potential importance in agricultural policy and in improved mapping with many applications important to the Nation in that regard.

In supporting this budget, we are well aware that other considerations are now in progress in the Congress and looking at other approaches to the budget, including the potential of a freeze. We would strongly urge that if the Congress is considering a freeze that that would not be done at the individual detailed level. At the most, the NSF total would be treated as a whole with retaining for NSF the capacity to make some adjustment on priorities within that total necessary.

And a second major point to draw attention to, Frank Press, president of the National Academy of Sciences, has noted recently that the work done in the social and behavioral field is important to American business in terms of how it does its work, and I would just add, Mr. Chairman, that in my work as a leader of an institution doing applied social science research bears on the effectiveness of Government programs, good or bad, and the like, that I see countless applications day in and day out of our work where the basic research in the fields of economics, statistics, and alike have very practical and useful application in the world, both public and private. I will be glad to answer any questions you might have.

Senator GARN. Thank you. I just comment that I agree with you on your approach, not only on NSF, but if we end up with a freeze, there will be some flexibility, and I will give you an example. A proposed freeze for NASA, which is difficult, in my opinion, for them to cope with, but if we are fair and invoke freezes generally across the board, I am willing to accept that.

We had one rather ingenius young man in CBO who went through and not just said, OK, we will have $7.5 billion for NASA as we did last year, but I will go through each individual program and freeze it at last year's level, but if they had a decrease from last year, I will accept that. So you ended up with $300 million less than a freeze.

We have got that problem on the floor right now because nobody picked that up originally in the so-called compromise between the President and the Senate Republicans. That is the only budget we are aware of where that unique approach to a freeze was taken. Don't freeze the total amount. The Appropriations Committee, in conjunction with the agency, needs to decide where that goes. Maybe he has got a hero's medal now with the $300 million he picked up with a freeze plus.

I would agree with you, in any of these budgets, if we have a freeze, we should leave some flexibility in the total for that agency to work with that money.

Mr. MORRILL. We strongly concur, sir.

Senator GARN. Thank you very much.

[The statement follows:]

STATEMENT OF WILLIAM MORRILL, PH.D., ON BEHALF OF THE CONSORTIUM OF SOCIAL SCIENCE ASSOCIATIONS

Good afternoon. My name is William Morrill and today I am testifying on behalf of the Consortium of Social Science Associations [COSSA] as a member of its board of directors. COSSA represents more than 185,000 American scientists across the full range of the social and behavioral science disciplines, functioning as a bridge between the academic research community and the Washington community. A list of COSSA members, affiliates, and contributors is attached to my testimony. I am, in addition, the president of Mathematica Policy Research, a company that conducts applied social science research for both public agencies and private clients.

Funding basic scientific research is an important and long-accepted function of the Federal Government. The National Science Foundation [NSF] was created to "initiate and support basic scientific research and programs to strengthen scientific potential and science education programs at all levels in the mathematical, physical, biological, engineering, social, and other sciences. . . ." Congress and the citizenry agree that basic scientific research is important to maintaining this country's position in economic productivity and in technological and social innovation and discovery. Scientific breakthroughs can and do produce incalculable economic, social, and human benefits.

This subcommittee has been a strong supporter of basic scientific research. Even in this era of difficult budget choices, we ask the subcommittee to continue that commitment and vote for the budget levels contained in the National Science Foundation's proposed fiscal year 1986 budget which the President submitted.

The proposed fiscal year 1986 NSF budget includes a 4.4-percent increase for the Foundation as a whole, a 7-percent increase in research and related activities, a 19-percent increase for the Division of Social and Economic Science, and a 6-percent increase for programs in the Behavioral and Neural Science Division. All of these increases are fully justified and deserve the support of this subcommittee. As a spokesman for the social and behavioral science community, I will focus particularly on the last two increases.

The National Science Foundation serves as the primary source of research support for many of the areas in social and behavioral science. For example, research in physical geography receives very little support elsewhere in the public or private sectors; NSF also provides 95 percent of Federal support for basic academic research in political science, and in some disciplines 90 percent of Federal support for social measurement and analysis. Even in economic science, excluding the specialized activities of the Economic Research Service of the U.S. Department of Agriculture, NSF provides the major portion of Federal funding.

Although their increase is substantial in this tight budget year, the social and behavioral sciences at NSF still remain below their fiscal year 1980 levels in real dollars. More importantly, the proportion of the total research budget going to these programs has decreased since fiscal year 1980 and remains only 4.1 percent of that budget. [See tables attached to this testimony.]

The major increase for social and behavioral science research is in the economics program. A healthy and growing economy ranks with national security at the top of any sensible list of national priorities. Although there has been healthy skepticism about the contributions of some macroeconomic research to that goal, it is clear that considerable economic research has aided decisionmakers in the development of economic policy. For example, cost-benefit analysis and efficiency concerns, which are the natural province of economists, are important to countless public spending and regulatory decisions. Research on public finance has played an important role in the development of all the tax simplification proposals now under consideration.

Although part of the proposed increase in the economics program at NSF comes from the transfer of ongoing projects from the Regulation and Policy Analysis Program which was eliminated, there are other important research agendas covered by the increase. There is a recognized national need for better data collection and analysis in the areas of international trade, productivity, and economic growth. Furthermore, increased support in the economics program will lead to greater research on microeconomic questions dealing with the marketplace, company, or industry, which often get lost in the search for answers to large macro fiscal and monetary problems.

Two other programs slated for substantial increases if the proposed budget is adopted are geography and the history and philosophy of science. Geography is demonstrating increasing intellectual vitality by forging new ties to other sciences, notably the Earth sciences. Research in this discipline contributes to the national security at the Defense Mapping Agency. In addition, map correction based on satellite and high-altitude flights allows geographers to contribute to agricultural policy development. In the international trade arena, so important to the Nation at present, geographic research helps analyze world commodity markets. Research in geography also involves the development of land-use and urban planning policy.

The History and Philosophy of Science Program is a growth stock intellectually and has the distinctive role of helping to keep all the sciences self-critical. As scientific and technological growth explode around us it is important to remember past discoveries, understand how they came about, and track new ones.

This subcommittee has played a special role in recognizing the importance of teaching and learning research. This support for understanding how people learn and retain information should remain a high priority for basic research in the behavioral sciences. We believe, along with the subcommittee, that funding for this research is provided best within the research programs at NSF and not in the programs in the Science and Engineering Directorate at the Foundation. While it is important to understand more about science education as a process and an area of practice, techniques and methods for improving science education always need fundamental research in a deliberate manner to produce meaningful results. Only such research will, for example, illuminate cognition and motivation.

The elimination of the Ethics and Values in Science and Technology [EVIST] Program has disturbed many in the social and behavioral science community. This program serves important purposes by creating a necessary visible commitment to the issue of the ethical and moral impacts of the Nation's scientific and technical advances. We urge that the subcommittee adopt report language that maintains EVIST as a separate program as in the past, with its funding at $1 million.

COSSA's support of and comments on the proposed 1986 NSF budget now before the subcommittee would not be complete without also touching on two other matters. The first concerns alternative 1986 budget measures now being considered by the Congress, including freezing the total or subordinate parts of the NSF budget at 1985 levels. We believe such action would be a great mistake. We understand the need for fiscal constraint in the aggregate, but believe the application of a freeze mindlessly to all components of the budget ensures false economies and lost opportunities. New and useful knowledge across a wide range of science and technology is critical to a stronger and better future and can be obtained through modest expansions of sound programs.

The second matter concerns the usefulness of the new knowledge obtained. COSSA strongly believes that social and behavioral science research plays a significant role in developing alternative solutions for decisionmakers in government, education, and industry. Frank Press, president of the National Academy of Sciences, has noted that social science has provided American business the tools which the private sector often relies upon to make its decisions. Sample surveys, human factors, reinforcement theory, organization theory, and many other concepts derived from basic social and behavioral science research have been applied to the everyday world of American business.

In the work of the organization I head, we continuously see the application of social science to practical decisions in the public and private sector. Econometric techniques, statistics, and sample surveys are used by my organization to help assess the effectiveness and impact of public and private programs and have been used by the Congress in starting, retaining, changing, and terminating Federal programs in recent years. We would be far less useful, if useful at all, without the previously developed scientific underpinning to such work. And we can also see the continuing need for advancement of the science if those contributions are to continue in the future.

This subcommittee has not forgotten these contributions in the past and COSSA is grateful for its previous actions on the NSF budget for the social and behavioral sciences. This year we urge the subcommittee to appropriate funds for the proposed increases in the research budget at the National Science Foundation.

Thank you for the opportunity to appear before you this afternoon. I will be happy to answer any questions you might have.

NATIONAL SCIENCE FOUNDATION

Funding for Selected Directorates and Programs (in million $)

	Actual FY1980	Actual FY1981	Actual FY1982	Actual FY1983	Actual FY1984	Actual FY1985	Proposed FY1986	%Change FY85-86	%Change FY80-86
Dir. for Mathematical and Physical Sciences (MPS)	227.0	256.5	272.9	299.7	355.0	396.6	429.0	+8	+89
Dir. for Astronomic/Atmospheric Earth & Ocean Sciences (AAEO)	218.1	236.3	240.0	276.2	328.6	351.7	372.2	+6	+71
Dir. for Engineering (ENG)	76.6	83.8	93.3	101.1	128.6	150.0	170.1	+13	+122
Dir. for Scientific, Tech. and International Affairs (STIA)	36.6	35.0	40.3	44.1	36.2	44.5	38.4	-14	+5
Dir. for Biological, Behavioral and Social Sciences (SES)	185.7	185.6	176.0	190.2	223.4	252.0	272.0	+8	+46
Social and Behavioral Science Programs in BBS	52.4	43.7	32.3	36.0	42.8	50.3	56.9	+13	+9
Social & Behavioral Science As Proportion of Research & Related Activities	5.9%	4.6%	3.3%	3.7%	3.8%	3.9%	4.1%		
Science & Engineering Education	77.2	64.7	20.9	16.1	57.4	82.0	82.0*	—	+6

*Includes a deferral of $31 million from the FY 1985 appropriation.

Social and Behavioral Science Research Programs in BBS (in million $):

	Actual FY1980	Actual FY1981	Actual FY1982	Actual FY1983	Actual FY1984	Actual FY1985	Proposed FY1986	%Change FY85-86	%Change FY80-86
Division of Behavioral and Neural Sciences (selected programs)									
Neuroscience									
Psychobiology	4.5	4.3	3.4	3.7	4.2	4.4	4.7	+7	+4
Cognitive Science									
Memory & Cog. Processes	2.6	2.4	2.2	2.3	2.6	4.5*	4.6	+2	+77
Social & Dev. Psychology	3.3	2.6	1.5	2.1	2.6	3.1*	3.2	+3	-3
Linguistics	2.7	2.2	2.1	2.2	2.4	3.1*	3.2	+3	+19
Anthropology	6.6	6.0	5.5	5.8	6.4	6.7*	7.3	+9	+11
Subtotal	19.7	17.5	14.7	16.1	21.8	23.0	23.0	--	+17
Division of Social and Economic Science									
Economics & Geography									
Economics	12.2	9.4	6.3	7.1	9.4	10.2*	14.3	+40	+17
Geography	1.6	1.2	0.7	0.8	1.0	1.3*	1.6	+23	--
Social Measurement & Analysis									
Sociology	3.9	3.0	2.2	2.4	3.0	3.9*	4.2	+8	+8
Meas. Meth./Data Improve.	5.0	3.9	2.9	3.3	3.6	3.4*	3.8	+12	-24
History/Phil./Science	1.5	1.1	0.9	1.1	1.4	1.7*	2.2	+29	+47
Political & Policy Sciences									
Political Science	3.6	2.9	2.1	2.3	2.8	3.6*	4.1	+14	+14
Law & Social Sciences	0.9	0.9	1.1**	1.2	1.4	1.8*	2.2	+22	+144
Reg. & Policy Analysis	2.6	2.7	0.9	0.9	1.1	1.3*	-0-	-100	-100
Decision/Management Sci.			0.5	0.8	1.0	1.3*	1.5	+15	N/A
Subtotal	31.3	25.1	17.6	19.9	24.6	28.5	33.9	+19	+8
TOTAL-Social & Behavioral Science Research Programs	52.4	43.7	32.3	36.0	42.8	50.3	56.9	+13	+9

*Includes $5 million transfer from Science and Engineering Education for teaching and learning research (as directed by Congress)

**In FY 1981, this program was combined with the Law and Policy Program of the Division of Applied Research.

CONSORTIUM OF SOCIAL SCIENCE ASSOCIATIONS

Members

American Anthropological Association
American Economic Association
American Historical Association
American Political Science Association
American Psychological Association
American Sociological Association
American Statistical Association
Association of American Geographers
Association of American Law Schools
Linguistic Society of America

Affiliates

American Association for Public Opinion Research
American Educational Research Association
American Society of Criminology
Association for Asian Studies
Eastern Sociological Society
Economic History Association
Evaluation Network
Evaluation Research Society
History of Science Society
International Studies Association
Law and Society Association
Midwest Sociological Society
National Council on Family Relations
National Council for the Social Studies
North Central Sociological Association
Northeastern Anthropological Association
Population Association of America
Regional Science Association
Rural Sociological Society
Social Science History Association
Society for American Archaeology
Society for the History of Technology
Society for Research in Child Development
Society for the Scientific Study of Religion
Society for Social Studies of Science
Southwestern Social Science Association
Speech Communication Association

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University of Iowa
The Johns Hopkins University
Massachusetts Institute of Technology
University of Michigan
University of Missouri
University of Nebraska
New York University
University of North Carolina, Chapel Hill
Ohio State University
University of Pennsylvania
Pennsylvania State University
University of Pittsburgh
Princeton University
Rutgers University
Social Science Research Council
University of Southern California
Stanford University
State University of New York at Stony Brook
University of Tennessee, Knoxville
Texas A & M University
Tulane University
University of Washington
University of Wisconsin, Madison
University of Wisconsin, Milwaukee
Yale University

STATEMENT OF JULES LAPIDUS, PRESIDENT, COUNCIL OF GRADUATE SCHOOLS IN THE UNITED STATES, ON BEHALF OF THE ASSOCIATION OF AMERICAN UNIVERSITIES AND NATIONAL ASSOCIATION OF STATE UNIVERSITIES AND LAND-GRANT COLLEGES

Senator GARN. When you look through long lists of names, there are always some you do not know how to pronounce. Should I try or let you tell me?

Mr. LAPIDUS. I will be glad to do it.

Senator GARN. How do you pronounce your name?

Mr. LAPIDUS. Jules LaPidus.

Senator GARN. Thank you. You bailed me out.

Mr. LAPIDUS. Mr. Chairman, my name is Jules LaPidus, president of the Council of Graduate Schools in the United States. I am pleased to be here today on behalf of a a number of higher educational associations to speak to the NSF budget and the 1986 authorization. I am pleased to follow my colleague who spoke particularly to the social science portion of that budget and the organizations that I represent also agree that it is important to maintain strong levels of funding in those social sciences and also in the mathematical sciences which the Foundation budget speaks to very specifically.

The organizations that I am representing basically deal with America's research universities found in the NSF budget in 1986 and 1986 authorization to be a carefully worked out, reasonable and, above all, well-balanced budget, given the Foundation's array of programs that put together the various components necessary to maintain strong research programs—that is, support for students, support for individual investigators, support for major research initiatives, trying to bring together all of these, in addition to supporting science and engineering education in the United States—we find this to be an appropriate budget at this time, one that is satisfactory for research and graduate education in the United States, one that the research community should strongly support, and we think the committee should strongly support.

There are four specific points I would like to mention, and these are treated in more detail in my testimony which have been submitted for the record.

GRADUATE FELLOWSHIPS

Mr. LAPIDUS. One is in terms of graduate fellowships. The National Science Foundation has made major strides in the last few years in raising the stipend level of these fellowships and raising the tuition support necessary to support the kind of graduate education we are talking about. We would like to see in the next few years these levels raised even higher. The reason for that being in the fields the National Science Foundation supports, we are in a situation today where we are trying to attract talented young American students to enter careers in science and engineering. Those people with a bachelor's degree have a number of other options available to them today, which are good options, and the foregone income considerations are so enormous in many cases that institutions are finding the need to try to provide more reasonable stipends to attract good students into graduate programs.

An example of this is the new DOD Fellowship Program, offered by the Office of Naval Research providing stipend levels, tuition support, and providing research support to the Department's students.

The second is trying to get a good picture of what the national dimensions are of the modernization of research laboratory facilities in this country. There currently exists no agency with a data gathering analysis capability to try to understand this problem to put together data so we can proceed to address it in a reasonable logical fashion.

We are very pleased to see the House Committee on Science and Technology and the Senate Committee on Commerce have both provided identical recommendations that the NSF be directed to initiative such a program. We would urge that this committee also follow up on that particular point so that the National Science Foundation incorporates into its general study of science resources in the United States an ongoing evaluation of what the real extent of this problem is in terms of laboratory modernization and provide some basis then for attacking it in a reasonable fashion.

Third, we would like to reiterate the point the Council of Graduate Schools and other organizations, have been making over the past few years. We feel that the Nation is best served and that the national return on investment of research dollars, particularly for facilities, is best served in open competitive award processes that are dealt with by all individual parties who are qualified and interested in participating.

In the absence of any competitive Federal programs for facilities, there are many pressures very often to earmark funds for specific institutions. We oppose this process. We would urge this committee to resist such pressures, and we would urge the committee to ask the National Science Foundation and the other mission agencies to develop such competitive processes for laboratory modernization.

Finally, Mr. Chairman, I would like to speak very briefly about the same issue that my colleague who preceded me on this program spoke, and that is the recent actions taken to freeze the NSF budget at the 1985 levels. Given the understanding of the financial constraints that we are all operating under, the effects would be immediate and serious and basically, I think, it would be very simple. It would slow down, impair, reduce the vitality of the research capability in the United States.

More than that, however, particularly at this point when there is a concerted effort made to attract young people into careers of science, engineers, a signal is sent out that it would not affect just this year's program or next year's, but would have a significant effect on the science vitality of this country for years to come. We would suggest these urges be resisted. This is not the time to put a freeze on science and technological progress in the United States, and this committee do all it can to see funds are restored to the levels requested by the Foundation.

Thank you, Mr. Chairman. I will be pleased to answer any questions.

Senator GARN. Thank you. I appreciate your testimony very much.

[The statement follows:]

STATEMENT OF DR. JULES LAPIDUS, PRESIDENT, COUNCIL OF GRADUATE SCHOOLS IN THE UNITED STATES

MY NAME IS JULES LAPIDUS, AND I AM PRESIDENT OF THE COUNCIL OF GRADUATE SCHOOLS IN THE UNITED STATES. I APPRECIATE THE OPPORTUNITY TO APPEAR BEFORE YOU TODAY ON BEHALF OF SEVERAL HIGHER EDUCATION ASSOCIATIONS TO COMMENT ON THE PROPOSED BUDGET AND FY 1986 APPROPRIATION FOR THE NATIONAL SCIENCE FOUNDATION.

FIRST PRINCIPLES

DR. GEORGE A. KEYWORTH, SCIENCE ADVISOR TO THE PRESIDENT, RECENTLY APPEARED BEFORE SEVERAL CONGRESSIONAL COMMITTEES TO PRESENT THE ADMINISTRATION'S VIEWS ON THE THE FEDERAL R&D BUDGET FOR FY 1986. I SHOULD LIKE TO BEGIN MY STATEMENT THIS MORNING BY BRIEFLY RESTATING THE SUBSTANCE OF SEVERAL FAMILIAR THEMES TAKEN FROM DR. KEYWORTH'S REMARKS. THE ASSOCIATIONS I REPRESENT HAVE ADDRESSED THESE POINTS IN EARLIER TESTIMONY BEFORE THIS COMMITTEE. THE RESEARCH ENTERPRISE WILL BE WELL SERVED IF THESE PRINCIPLES INFORM OUR RESPONSE TO PRESENT CIRCUMSTANCES AND GUIDE OUR LONGER RANGE R&D PLANNING AND BUDGETING. AMONG THE POINTS DR. KEYWORTH EMPHASIZED WERE THESE:

1. OUR SCIENTIFIC LEADERSHIP IS EXTREMELY FRAGILE. IT REQUIRES CONTINUOUS AND CAREFUL ATTENTION. SHORT-TERM BUDGET CONSTRAINTS ON OUR RESEARCH ENTERPRISE ARE ACCEPTABLE, BUT ONLY IF WE RECOGNIZE THAT THE LONGER TERM HEALTH OF OUR PEOPLE, OUR ECONOMY AND OUR NATIONAL SECURITY REQUIRE A CONTINUOUS COMMITMENT TO INVEST IN THE NECESSARY EFFORT TO SUSTAIN OUR LEADERSHIP.

2. TECHNOLOGY AND TALENT ARE OUR TWO COMPETITIVE ADVANTAGES; NATIONAL INVESTMENT IN THEM MUST BE SUSTAINED. EXPLOITATION OF TECHNOLOGY, MAINTENANCE OF ECONOMIC HEALTH AND NATIONAL SECURITY REQUIRE PREEMINENCE IN BASIC SCIENCE AND A SUSTAINED COMMITMENT TO EXCELLENCE IN THE TRAINING OF YOUNG PEOPLE.

3. CONSTRUCTION, MODERNIZATION AND RETOOLING OF OUR RESEARCH FACILITIES MUST RECEIVE PRIORITY ATTENTION IN OUR R&D PLANNING AND BUDGETING IN THE YEARS IMMEDIATELY AHEAD. THE MISSION AGENCIES SHOULD BEGIN NOW TO REEXAMINE AND TO IMPROVE THEIR CAPACITIES TO SUPPORT, DEVELOP, AND MANAGE QUALITY BASIC SCIENCE AND ENGINEERING PROGRAMS IN FIELDS APPROPRIATE TO THEIR MISSIONS.

4. MISALLOCATIONS OF OUR LIMITED RESOURCES WILL COMPROMISE OUR COMMITMENTS TO QUALITY AND EXCELLENCE IN OUR GRADUATE EDUCATION AND RESEARCH PROGRAMS, AND THEY WILL PLACE OUR SCIENTIFIC AND TECHNICAL LEADERSHIP AT RISK.

WITH THESE ORGANIZING PRINCIPLES IN MIND WE OFFER THE FOLLOWING OBSERVATIONS ON THE FY 1986 BUDGET REQUEST OF THE NATIONAL SCIENCE FOUNDATION, AND ON THE CONSEQUENCES OF PROPOSED ACTION TO FREEZE THE FOUNDATION AT FY 1985 LEVELS.

THE FY 1986 BUDGET REQUEST

FIRST, IN THIS MOST UNUSUAL BUDGET YEAR THE NSF BUDGET REQUEST, WHILE NEITHER AS BOLD NOR AS AMBITIOUS AS SOME PREVIOUS REQUESTS, IS GENERALLY A WELL-BALANCED, CAREFULLY CRAFTED, AND SATISFACTORY ONE FOR UNIVERSITY RESEARCH AND GRADUATE PROGRAMS. IT DESERVES THE SUPPORT OF THE RESEARCH COMMUNITY AND THE ACTIVE SUPPORT OF THE CONGRESS.

THE BUDGET REQUEST RETAINS A REASONABLE AND APPROPRIATE BALANCE AMONG THE FOUNDATION'S CORE RESEARCH PROGRAMS. IT PURSUES PRIORITY INITIATIVES, INCLUDING THE INTERDISCIPLINARY ENGINEERING CENTERS, THE PROGRAM TO IMPROVE ACCESS TO SUPERCOMPUTERS, THE CONTINUING EFFORT TO UPGRADE RESEARCH INSTRUMENTATION AND RESEARCH RELATED TO BIOTECHNOLOGY. REASONABLE INCREASES TO MEET THE COSTS OF INFLATION AND PROVIDE FOR A SMALL MARGIN OF GROWTH ARE PROPOSED FOR MOST MAJOR RESEARCH PROGRAMS. WE ARE ESPECIALLY PLEASED TO SEE THE SPECIAL COMMITMENT TO RESEARCH IN THE MATHEMATICAL SCIENCES. THE CASE FOR RESEARCH IN THE MATHEMATICAL SCIENCES IS MADE COMPELLINGLY BY THE RECENT NATIONAL ACADEMY OF SCIENCES REPORT, RENEWING U.S. MATHEMATICS. WE DO NOTE WITH CONCERN, HOWEVER, THAT THE SELECTED INCREASES ARE ACCOMPLISHED IN PART THROUGH THE TERMINATION OF SEVERAL VALUABLE SMALLER PROGRAMS, INCLUDING THE UNIQUE ETHICS AND VALUES IN SCIENCE AND TECHNOLOGY PROGRAM.

THE MAJOR INITIATIVES IN ADVANCED COMPUTING AND ENGINEERING MUST GO FORWARD. WE URGE NSF, THIS COMMITTEE AND THE CONGRESS TO ENSURE THAT EACH CENTER RECEIVES ADEQUATE SUPPORT TO FUNCTION PROPERLY AND TO FULFILL ITS MISSION. THE BROADER RESEARCH COMMUNITY WILL BE ILL-SERVED BY A RAPID PROLIFERATION OF INADEQUATELY FUNDED SUPERCOMPUTER AND ENGINEERING CENTERS. NEW CENTERS SHOULD NOT BE PURCHASED AT THE COST OF IMPOSING INEFFICIENT OPERATION ON OTHERS. HERE, TOO, THE PRINCIPLE OF QUALITY RATHER THAN QUANTITY OUGHT TO BE THE GUIDE IN ESTABLISHING THESE IMPORTANT AND COSTLY ACTIVITIES.

CLOSELY RELATED TO THIS CONCERN IS THE NEED TO RETAIN A PROPER BALANCE IN FUNDING BETWEEN THE MAJOR NEW INITIATIVES AND FUNDING FOR COMPETITIVE AWARDS TO INDIVIDUAL RESEARCHERS THAT ARE THE BACKBONE OF NSF RESEARCH PROGRAMS. RECENT PROGRESS IN STRENGTHENING THE SIZE AND DURATION OF THE AVERAGE NSF GRANT SHOULD NOT BE ERODED BY THE NEW PROGRAMS. AGAIN, THE STRATEGY OUGHT TO ADHERE TO THE PRINCIPLES OF QUALITY AND STABILITY IN ONGOING RESEARCH AND TRAINING ACTIVITIES.

THE NEW ENGINEERING RESEARCH CENTERS, THE PROGRAM TO PROVIDE ACCESS TO ADVANCED SCIENTIFIC COMPUTING, THE PROPOSED CONTINUED INVESTMENT IN RESEARCH INSTRUMENTATION, AND THE PROGRAMS TO STRENGTHEN OUR INVESTMENT IN PEOPLE; I.E., THE PRESIDENTIAL YOUNG INVESTIGATORS PROGRAM,-POSTDOCTORAL, AND GRADUATE FELLOWSHIP PROGRAMS, ARE ESSENTIAL INVESTMENTS IN OUR SCIENTIFIC AND TECHNOLOGICAL FUTURE. THEY DESERVE THE SUPPORT OF THE RESEARCH COMMUNITY AND THE CONGRESS. THE ACTIVITIES DESIGNED TO ENHANCE THE RESEARCH CAREER PROSPECTS FOR OUR MOST TALENTED YOUNG MINDS, ESPECIALLY WOMEN AND MINORITIES, MUST CONTINUE TO RECEIVE PRIORITY ATTENTION. PRESENT BUDGETARY CONCERNS SHOULD NOT BE ALLOWED TO WEAKEN OUR COMMITMENT TO ATTRACTING THE VERY BEST TALENT INTO RESEARCH AND TEACHING CAREERS. WE ARE PLEASED TO NOTE THAT THE BUDGET REQUEST ATTEMPTS TO PROTECT RECENT GAINS IN THIS AREA.

SOME MAY ARGUE THAT THE NSF BUDGET REQUEST IS DEFICIENT. IN RESPONSE WE RESPECTFULLY SUGGEST THAT NOW IS NOT THE TIME TO SECOND GUESS THE UNDERLYING SCIENTIFIC AND TECHNICAL JUDGMENTS REFLECTED IN THE FOUNDATION'S BUDGET REQUEST. TO DO SO WILL IGNORE THE OBVIOUS AND CAREFUL BALANCING OF PRIORITIES REFLECTED IN THE REQUEST. IF ATTEMPTS ARE MADE TO RESPOND TO SPECIAL PLEAS TO REALLOCATE SIGNIFICANT AMOUNTS OF FUNDS FROM CERTAIN RESEARCH PROGRAMS TO OTHERS, OR FROM RESEARCH ACTIVITIES TO OTHER FUNCTIONS, THE FUNDAMENTAL PRINCIPLES OUTLINED ABOVE QUICKLY WILL BE VIOLATED TO THE DETRIMENT OF THE ENTERPRISE OVERALL. THIS BUDGET IS A RESTRAINED AND RESPONSIBLE REQUEST. IT IS NEITHER SERIOUSLY OUT OF BALANCE NOR SO DEFICIENT AS TO JUSTIFY A REALLOCATION OF FUNDS AMONG THE MAJOR RESEARCH PROGRAMS OR FROM THEM TO OTHER PURPOSES. IF SUCH PROPOSALS ARE MADE WE ASK THAT THE COMMITTEE REJECT THEM, AND IF NECESSARY, ASK YOUR HOUSE COLLEAGUES ALSO TO REJECT THEM.

THE BUDGET REQUEST FOR THE DIVISION OF SOCIAL AND BEHAVIORAL SCIENCE MERITS A SPECIAL WORD. THE BUDGET FOR THESE PROGRAMS REFLECTS A CONTINUING COMMITMENT TO RESTORE THEM TO A MORE

APPROPRIATE POSITION AMID THE FOUNDATION'S PROGRAMS. THE INCREASES FOR THE DIVISIONS OF SOCIAL AND ECONOMIC SCIENCE AND BEHAVIORAL AND NEURAL SCIENCE REFLECT A RECOGNITION OF THE INTELLECTUAL VITALITY AND IMPORTANCE OF THESE FIELDS. FOR MOST OF THESE DISCIPLINES THE FOUNDATION IS THE MAJOR OR SOLE SOURCE OF FEDERAL INVESTMENT. DESPITE THE REQUESTED INCREASES, ONE MUST NOTE, THESE PROGRAMS ARE NOT YET IN REAL TERMS BACK TO THEIR 1980 FUNDING LEVELS. WE THANK THE COMMITTEE FOR YOUR PREVIOUS SUPPORT OF THESE AREAS, AND WE URGE THAT THEY BE SUPPORTED AT THE LEVELS REQUESTED.

SCIENCE AND ENGINEERING EDUCATION

NEXT, I SHOULD LIKE TO BRIEFLY ADDRESS THE FOUNDATION'S PROGRAM. IN SCIENCE AND ENGINEERING EDUCATION. WE SUPPORT FUNDING FOR THE FOUNDATION'S SCIENCE AND ENGINEERING PROGRAMS AT CURRENT YEAR LEVELS.

FOR THE PAST SEVERAL YEARS WE HAVE JOINED WITH MANY OTHERS IN SUPPORTING THE DEVELOPMENT OF SOUND SCIENCE AND ENGINEERING EDUCATION PROGRAMS IN THE FOUNDATION. WE CONTINUE TO SUPPORT AN NSF LEADERSHIP ROLE IN DESIGNING ACTIVITIES TO STRENGTHEN PRECOLLEGE AND UNDERGRADUATE SCIENCE AND ENGINEERING PROGRAMS. NSF MUST RETURN TO A POSITION OF NATIONAL LEADERSHIP IN THIS AREA. WE SHARE A SENSE OF IMPATIENCE THAT MORE CANNOT BE DONE MORE QUICKLY, BUT WE ALSO RECOGNIZE THE MANAGEMENT DIFFICULTIES ASSOCIATED WITH SO AMBITIOUS AN UNDERTAKING AS THE PRESENT ONE. THEREFORE WE BELIEVE IT WOULD BE A MISTAKE TO ACCELERATE FUNDING BEYOND THE LEVEL PROPOSED UNTIL THE PROGRAM IS FULLY PREPARED TO UTILIZE ADDITIONAL RESOURCES EFFECTIVELY.

RECENTLY DR. JAROSLAV PELIKAN, STERLING PROFESSOR OF HISTORY AT YALE, ON THE OCCASION OF THE SESQUICENTENNIAL OF TULANE UNIVERSITY, SAID THIS ABOUT THE IMPORTANCE OF UNDERGRADUATE EDUCATION TO THE UNIVERSITY:

> "...THE DIFFERENCE BETWEEN BAD SCHOLARSHIP AND GOOD SCHOLARSHIP IS THE RESULT OF WHAT WE DO IN THE GRADUATE SCHOOL, BUT THE DIFFERENCE BETWEEN GOOD SCHOLARSHIP AND GREAT SCHOLARSHIP IS THE RESULT OF WHAT WE DO IN THE COLLEGE."

THE BOUNDARIES BETWEEN TWO-YEAR INSTITUTIONS, FOUR-YEAR COLLEGES AND GRADUATE UNIVERSITIES ARE, IN PART, SIMPLE AND NECESSARY ADMINISTRATIVE CONVENIENCES; THEY ARE NOT IMPERMEABLE WALLS. THEY SHOULD NOT BE SEEN AS BARRIERS TO BETTER UNDERSTANDING OF THE MORE FUNDAMENTAL COMMUNITY OF INTEREST SHARED BY ALL LEVELS OF THE NATIONAL EDUCATION AND RESEARCH ENTERPRISE. AS THE NEW NSF SCIENCE AND ENGINEERING EDUCATION ACTIVITY IS DEVELOPED THE UNIVERSITIES JOIN WITH UNDERGRADUATE INSTITUTIONS TO ASK THAT THE NEEDS AND ROLE OF THE UNDERGRADUATE INSTRUCTIONAL PROGRAMS ALSO BE ADDRESSED. WE ARE PLEASED TO NOTE THAT THE FOUNDATION PROPOSES TO CONTINUE AND STRENGTHEN SOMEWHAT ITS PROGRAM OF RESEARCH AT PREDOMINATELY UNDERGRADUATE INSTITUTIONS.

GRADUATE FELLOWSHIPS

WITH REGARD TO THE GRADUATE FELLOWSHIP PROGRAM, WE NOTE THAT LEVEL FUNDING AT THE FY 1985 LEVEL IS PROPOSED. IN THE LAST TWO YEARS SIGNIFICANT PROGRESS HAS BEEN MADE TO STRENGTHEN THE PROGRAM BY INCREASING THE STIPEND ($11,100) AND COST OF EDUCATION ALLOWANCE ($6,000). HOWEVER, IT IS IMPORTANT TO UNDERSTAND THAT THE PROGRAM CONTINUES TO LAG BEHIND MARKET FORCES IN THE COMPETITION FOR NEW TALENT.

THE NEW DOD GRADUATE FELLOWSHIP PROGRAM OF THE OFFICE OF NAVAL RESEARCH (ONR) IS A MORE EFFECTIVE INCENTIVE FOR THE VERY BEST MINDS TO PURSUE GRADUATE TRAINING IN THE SCIENCES AND ENGINEERING. THE ONR PROGRAM RECOGNIZES THE CURRENT LABOR MARKET DEMAND FOR TALENTED BACHELORS LEVEL SCIENTISTS AND ENGINEERS. IT SEEKS TO COMPETE FOR THOSE INDIVIDUALS BY PROVIDING STIPENDS OF $13,000 TO $14,000, FULL TUITION PLUS A SUPPLEMENTAL RESEARCH AWARD TO THE HOST DEPARTMENT. IF THE FOUNDATION WERE TO ADOPT THIS APPROACH IT WOULD SUBSTANTIALLY STRENGTHEN ITS GRADUATE FELLOWSHIP AND MINORITY GRADUATE FELLOWSHIP PROGRAMS.

THE COST OF BRINGING THE STIPEND INTO LINE WITH THE DOD PROGRAM WOULD BE ABOUT $3 MILLION. A COMPARABLE INCREMENT WOULD INCREASE THE COST OF EDUCATION PAYMENT TO ABOUT $8,000, A LEVEL CLOSER TO PRESENT TUITION LEVELS IN LEADING INDEPENDENT AND PUBLIC UNIVERSITIES. THESE OUGHT TO BE THE NEXT STEPS TAKEN.

RESEARCH FACILITIES

DR. KEYWORTH HAS EMPHASIZED THAT "WHATEVER FISCAL SCENARIO WE FACE" WE MUST BEGIN TO PROVIDE FOR PRIORITY RESEARCH FACILITIES WITHIN OUR R&D PROGRAMS. THE MOST SERIOUS PROBLEM NOW FACING OUR

RESEARCH UNIVERSITIES IS THE NEED TO MODERNIZE THEIR RESEARCH LABORATORIES, INCLUDING BOTH THE RESEARCH INSTRUMENTATION NECESSARY FOR THE CONDUCT OF MODERN RESEARCH AND ADVANCED TRAINING AND, IN A GREAT MANY CASES, THE REHABILITATION OF THE LABORATORY BUILDINGS THEMSELVES. AT THE PRESENT MOMENT, HOWEVER, NO AGENCY OF GOVERNMENT POSSESSES A DATA COLLECTION AND ANALYSIS CAPABILITY WITH WHICH TO DOCUMENT, TO ANALYZE AND TO BETTER UNDERSTAND THE NATIONAL DIMENSIONS OF THE PROBLEM OR THE CONSEQUENCES OF THE CAPITAL DEFICIT FOR THE NATION'S RESEARCH PROGRAMS. THERE ARE NO PROGRAMS IN PLACE OR APPARENTLY BEING DESIGNED TO PROVIDE FEDERAL LEADERSHIP. AS A RESULT DEBATE ON THE MERITS OF THE ISSUE FREQUENTLY IS IMPEDED BY MISPERCEPTION AND MISINFORMATION.

LATE LAST YEAR THE NSF, WORKING WITH SEVERAL OTHER LEADING AGENCIES (DOD, DOE, NIH, USDA, AND NASA) PREPARED TO CARRY OUT A FIVE-AGENCY ASSESSMENT OF THE PROBLEM; THE STUDY WAS REQUESTED OF DOD BY THE HOUSE COMMITTEE ON ARMED SERVICES. AT THE LAST MOMENT, AFTER MUCH OF THE DESIGN WORK HAD BEEN COMPLETED, NSF WAS BARRED BY OMB FROM CARRYING OUT THE SURVEY. AS A CONSEQUENCE OF THE OMB ACTION NSF HAS NOT YET MOVED AHEAD TO ESTABLISH A DATA COLLECTION AND ANALYSIS CAPABILITY ON RESEARCH FACILITIES NEEDS, SIMILAR TO THE ONE NOW IN PLACE FOR RESEARCH EQUIPMENT.

WE ARE PLEASED THAT THE HOUSE COMMITTEE ON SCIENCE AND TECHNOLOGY AND THE SENATE COMMERCE COMMITTEE HAVE INCLUDED IN THEIR AUTHORIZATION BILLS SIMILAR PROVISIONS DIRECTING THE FOUNDATION TO DEVELOP THE NECESSARY ANALYTICAL CAPABILITY ON THE FACILITIES PROBLEM. WE HOPE THAT THIS COMMITTEE WILL JOIN WITH THEM IN DIRECTING THE FOUNDATION TO SUSTAIN THE EFFORT AS AN INTEGRAL PART OF THE FOUNDATION'S SCIENCE RESOURCES STUDIES PROGRAM.

LAST YEAR THE CGS AND SEVERAL OTHER HIGHER EDUCATION ASSOCIATIONS JOINED WITH OTHER ORGANIZATIONS IN CALLING FOR A REAFFIRMATION OF THE ROLE OF OPEN MERIT-BASED COMPETITION IN THE AWARD OF FEDERAL RESEARCH RESOURCES, ESPECIALLY IN THE AWARD OF EARMARKED FUNDING FOR RESEARCH FACILITIES. I WANT TO REEMPHASIZE OUR FIRM CONVICTION THAT THE NATION RECEIVES ITS GREATEST RETURN ON ITS INVESTMENT OF RESEARCH AND RESEARCH FACILITIES FUNDS WHEN THEY ARE AWARDED ON THE BASIS OF SCIENTIFIC MERIT IN OPEN COMPETITION AMONG ALL INTERESTED AND QUALIFIED PARTIES. BECAUSE WE LACK ORGANIZED COMPETITIVE PROGRAMS FOR FACILITIES FUNDING, WE ARE LIKELY TO SEE CONTINUED PRESSURE FOR EARMARKED FUNDING FOR A PRIVILEGED FEW. WE URGE THE COMMITTEE TO CONTINUE TO RESIST SUCH APPROACHES, AND, WHILE DOING SO, TO ASK NSF TO JOIN WITH OTHER

MISSION AGENCIES TO PLAN FOR AND PROPOSE RESEARCH LABORATORY REHABILITATION INITIATIVES NEXT YEAR.

THE CONSEQUENCES FOR NSF RESEARCH PROGRAMS OF A BUDGET FREEZE

MR. CHAIRMAN, THE NATION'S RESEARCH UNIVERSITIES, OF COURSE, ARE DEEPLY CONCERNED ABOUT THE LIKELY CONSEQUENCES FOR THE FOUNDATION'S RESEARCH PROGRAMS OF THE RECENT ACTIONS TO FREEZE THE NSF AUTHORIZATION FOR FY 1986 AT THE FY 1985 LEVEL. AS WE UNDERSTAND IT, BASED UPON MR. BLOCH'S TESTIMONY, A FREEZE OF NSF RESEARCH PROGRAMS WILL HAVE IMMEDIATE AND SERIOUS IMPACTS ON MANY OF THE PRIORITY ACTIVITIES I HAVE JUST ADDRESSED.

SEVERAL MAJOR NATIONAL PROGRAMS IMPORTANT TO UNIVERSITY RESEARCH AND EDUCATION WILL BE REDUCED. THESE INCLUDE THE CORNELL ELECTRON STORAGE RING, THE UNIVERSITY OF WISCONSIN SYNCHROTRON, THE VERY LONG BASELINE ARRAY AND THE NATIONAL CENTER FOR ATMOSPHERIC RESEARCH (NCAR). THE NEW INTERDISCIPLINARY ENGINEERING CENTERS AND THE ADVANCED SCIENTIFIC COMPUTING PROGRAM ALSO WILL BE CUT. THE COMBINED REDUCTIONS IN THESE AREAS ARE LIKELY TO TOTAL ABOUT $30 MILLION.

THE FOUNDATION IS MAKING SIGNIFICANT PROGRESS IN ADDRESSING THE CRITICAL NEEDS TO MODERNIZE RESEARCH INSTRUMENTATION. HOWEVER, IF A FREEZE AT FY 1985 LEVELS IS IMPOSED, FUNDING FOR NEW EQUIPMENT WILL BE CUT BY ABOUT $20 MILLION. THIS WILL SERIOUSLY SET BACK THE EQUIPMENT MODERNIZATION EFFORT.

EVEN IF ALL OF THESE REDUCTIONS ARE MADE, IN ORDER TO COMPLY WITH THE FREEZE THE FOUNDATION WILL NEED TO CUT ANOTHER $20 MILLION FROM ITS FY 1986 REQUEST. THESE REDUCTIONS WILL COME FROM NEW RESEARCH INITIATIVES AND ENHANCEMENTS ESSENTIAL TO OUR SCIENTIFIC AND TECHNOLOGICAL FUTURE. FUNDING FOR RESEARCH IN ADVANCED MATERIALS, BIOTECHNOLOGY, ENGINEERING AND THE SOCIAL AND ECONOMIC SCIENCES WILL BE REDUCED. THE SPECIAL EFFORT TO STRENGTHEN INVESTMENT IN RESEARCH AND TRAINING IN THE MATHEMATICAL SCIENCES WILL BE CUT, IMPOSING ANOTHER SETBACK ON THIS CRUCIAL FIELD. RESEARCH OPPORTUNITIES AND CAREER PROSPECTS IN EACH OF THESE FIELDS WILL BE WEAKENED JUST AT THE MOMENT WHEN WE NEED TO ATTRACT AND ENCOURAGE TALENTED PEOPLE TO PURSUE CAREERS IN THEM. THE PROSPECTS OF FITFUL COMMITMENTS AND START AND STOP FUNDING WILL DISCOURAGE MANY OF THE MOST TALENTED INDIVIDUALS FROM ENTERING THESE AREAS.

WE ASK THE COMMITTEE TO CLOSELY MONITOR THE CONSEQUENCES OF THE HOUSE ACTION FOR THE FOUNDATION'S PROGRAMS AND, TO PRESS EVERY OPPORTUNITY TO RESTORE THESE FUNDS TO THE LEVELS ORIGINALLY REQUESTED BY THE FOUNDATION. SURELY OUR COMPETITORS IN THE INTERNATIONAL MARKETPLACE WILL BE WATCHING CLOSELY, AND THEY NO DOUBT WILL WELCOME A DECISION TO FREEZE OUR COMMITMENTS TO SCIENTIFIC AND TECHNOLOGICAL PROGRESS.

THANK YOU, MR. CHAIRMAN. I WILL BE PLEASED TO RESPOND TO QUESTIONS.

STATEMENT OF LLOYD KAISER, PRESIDENT, WQED-TV, PITTSBURGH, PA, ON BEHALF OF THE NATIONAL ASSOCIATION OF PUBLIC TELEVISION STATIONS

Senator GARN. Is Mr. Lloyd Kaiser, representing the National Association of Public Televisions here?

Mr. KAISER. Thank you, Mr. Chairman. My name is Lloyd Kaiser. I am president of Metropolitan Pittsburgh Public Broadcasting. I am testifying on behalf of WQED, the Nation's first community-owned public television station, and on behalf of other public television stations throughout the country who have memberships in NAPTS, National Association of Public Television Stations.

WQED introduced Mr. Rogers to the world; we introduced the National Geographic specials and, most recently, the Chemical People in Wonder Works.

NAPTS president, Peter Fannon's testimony has already been submitted to you for the record.

The national association represents the public television system and has appeared before the House and before the Senate subcommittees each year to emphasize the critical importance of the support of the National Science Foundation for quality science programming on public television, such as NOVA and 3-2-1 Contact. I am certain that I need not elaborate on the details of the current crisis of science education for you. It has been examined and reexamined in major National reports, State conferences, and local newspapers, yet while the reports warn that we are moving toward a scientifically illiterate society, it seems ironic of all the PBS programming, science and nature shows draw the largest audiences, and they do that repeatedly. Eighteen and a half million homes turn to PBS weekly for its science offerings. That is 22 percent of the total population, and if you compare this with the three top science magazines, together they reach about 7 percent of America's households.

These national figures hold true of WQED's broadcasting area in western Pennsylvania. An examination of local ratings demonstrates that science and nature programs are the top rated programs that we carry on WQED. The value to the public of this type programming is evident.

We found that science and nature shows result in more donations than any single type during pledge drives. 3-2-1 Contact is one of the most popular programs available to the schools for classroom use in our area. There is little question people young and old turn to PBS for science programs. The schools in our area constantly request we do what we can in the area of science teacher training and try to combat what they call science anxiety among the young.

Television provides a user-friendly approach to information, in concepts related to science, mathematics, and technology. NSF funding is critical, obviously, to sustain the national interest in improving science education. Our own WQED productions seem to further support this premise. The National Geographic specials for the last 10 years have drawn the largest audiences on PBS. On the list of all time programs watched on PBS, the National Geographic specials hold 14 of the top 25 spots. Leading the way with No. 1, 2, and 3 positions are "The Sharks," "The Land of the Tiger," and "The Incredible Machine," which is on the human body—all National Geographic specials that we have produced.

There is a critical need for ongoing, updated science information presented in a format that is appealing to the American public. The American public has demonstrated a tremendous appetite for science information for quality programs on public television. I can verify this on both the local and national levels. The National Science Foundation report for the efforts of PBS stations across the country is critical if we are to be able to satisfy this hunger for scientific and technological information.

We must better understand the science in our lives. Public television has shown its ability to do just that. NSF and PBS can make a real difference in causing us to better understand the science in our lives. It can make a real difference, and we ask for your support. Thank you, Mr. Chairman.

Senator GARN. I must say, of my seven children, some of them are still young—6 and 3. So I still am very familiar with Mr. Rogers. I see it all the time, and 3-2-1 Contact. Who would expect an old bald-headed Senator would watch those currently, but I do and my little kids ask me to. In fact, we have got so many old tapes of Mr. Rogers. I have them all memorized; I know what he is going to say next.

We appreciate very much you coming and your contribution to public television.

Mr. KAISER. Thank you very much. I will pass that on to Fred. He will be pleased to know that.

Senator GARN. I am an expert, believe me.

[The statement follows:]

STATEMENT OF PETER M. FANNON, PRESIDENT, NATIONAL ASSOCIATION OF PUBLIC TELEVISION STATIONS

The National Association of Public Television Stations [NAPTS] is pleased once again to present testimony in support of the important educational programs funded by the National Science Foundation [NSF]. Our membership, the Nation's 308 public television stations, has utilized funds from NSF through the years directly or indirectly to present to the American public high-quality science education programming. We have been grateful for this important Federal support which has responded to the clear need for science education nationwide.

Over the last few years, the Congress and the American public have become increasingly alarmed over the appalling state of science and mathematics education at all levels from elementary to postgraduate. Our national shortage of qualified, interested math and science teachers has reached critical proportions. Higher levels of science education are not keeping up with the march of technology. Our educational system is not attracting enough members of the shrinking pool of college-age students to the engineering, math, and science fields.

There is not any quick fix answer to these problems. There can be, however, an organized, concerted effort made by the Nation's Government to encourage the study of these vital fields by our Nation's young people.

We in public television have seen a tremendous response to the many science programs, some supported by NSF, that our stations produce and distribute. Science programs distributed by the Public Broadcasting Service [PBS] reach 18.5 million households—or 46 million viewers—in this country every week. Science programs represent three of the list of four most widely viewed programs on PBS, and taken as a group, science programming on public television geared at all age and education levels has higher audience ratings than public affairs and cultural and entertainment programming.

What this means is that our science programs not only are providing television audiences with information they are not receiving on other stations, but they are also responding to a thirst that the American public has for science education.

Our eight-part landmark series, The Brain, which debuted last fall was carried by 275 stations covering 96 percent of the United States. Over 5.4 million households, or 13.5 million people, viewed at least one program. The success of The Brain, a series partially funded by NSF's Science and Engineering Education Directorate [SEE], was due in part to widespread public curiosity about the workings of the incredible 3-pound machine and in part to the wonderful adaptability of video technology to the complex subject matter.

According to Floyd E. Bloom, M.D., member of The Brain's advisory panel and coauthor of the program's related telecourse textbook: "The effective use of video animation and perspective can be of tremendous assistance in illustrating some of the more complex aspects of brain structure and function. The ability to freeze, move, and refreeze [scenes] from a different angle offers mobile perspectives that are virtually unduplicatable in any other medium."

This series produced by WNET/New York with the support of the CPB/Annenberg project, NSF, the National Institute of Neurological and Communicative Disorders and Stroke, the National Institute of Mental Health, and the National Institute of Aging, has been adapted for use by 2- and 4-year colleges and universities as a credited course, "Brain, Mind and Behavior." The series' overwhelming success has pointed very clearly to how the cooperative efforts of the Federal Government's science-related agencies and the public television system can combine to produce needed, academically oriented, and well-received science programming.

The weekly science series NOVA produced by WGBH/Boston, received initial important NSF support in 1972 and was continually nurtured by NSF until our stations could afford to carry the programs' cost themselves. NOVA programs are seen by as many as 20 million Americans per broadcast and are the most highly used PBS programs as instructional television in our Nation's schools. Nearly 95,000 high school teachers use the series to educate over 10.5 million students nationwide. NOVA has also been widely acclaimed by public officials and the media for presenting the scientific facts behind many domestic and international policy issues from acid rain to biological warfare to toxic waste.

To help educate our Nation's students at the most critical point of their education—the elementary level—NSF wisely supported the development and production of our series produced by the Children's Television Workshop 3-2-1 Contact. Thanks to NSF-SEE, the first 65-program series is being repeated for the eighth time on public television this year, a new series of 40 programs was inaugurated in 1983, and a third series of 20 programs is in production and may be ready for viewing this fall. 3-2-1 Contact is carried on 218 of our public television stations and is seen by 7.5 million viewers each week. Over 750,000 elementary school teachers receive the program's companion teacher guide, and science museums and schools have established weekend activities to support and extend the enthusiasm created by the program.

We are all too well aware of our need to upgrade science teaching nationwide. From our perspective in public television, this situation is as unfortunate as it is unnecessary. The program production and distribution capabilities of this Nation's educational television system offer a unique resource for the improvement of elementary and secondary science and mathematics education on a wide scale and in a cost-effective manner. Because our system reaches about 95 percent of the U.S. population, it is especially well suited to reaching vast numbers of people as well as targeting specific pockets of students. Public television stations can develop and provide a comprehensive package of teacher-training materials—programs that can be used as in-service teacher training or as college-credit courses.

This kind of programming in cooperation with individual public television stations has been supported by NSF in the past. One series currently available for distribution to colleges and teachers was produced by the New Jersey Network in 1983 with a grant from NSF. You, Me, and Technology aims to help viewers achieve technological literacy and an objective attitude toward technologies that searches for the tradeoffs between their costs and benefits.

Public television also needs more college-level courses, not just for our teachers, but for others in the work force who need to upgrade their education. PBS's Adult Learning Service [ALS] is doing just that. By providing telecourses—college-level television series supplemented and reinforced with textbooks, study guides, and class meetings—PBS is reaching half a million college and university students at over 750 institutions of higher learning across the country.

A recent survey commissioned by the CPB/Annenberg project of ALS students found that over two-thirds of the students were female, only 23 percent of the students were of traditional college age—18 to 22 years old—most were in 23- to 29-year-old categories, and the proportion of women increased with age. The survey also showed that 40 percent of the students in telecourses enrolled because an on-campus section of the course would conflict with their work schedules.

As stated previously, the series The Brain is the basis for the television course Brain, Mind and Behavior currently offered by the ALS. A new physics course produced by the California Institute of Technology and the Southern California Consortium and offered by ALS this year, The Mechanical Universe, is attempting to provide three levels of physics instruction, one of them in cooperation with NSF. The Mechanical Universe can be geared either to liberal arts students fulfilling a general science requirement, to the science or engineering majors demanding more rigorous preparation, or to the secondary school teachers seeking to upgrade their physics teaching skills.

NSF has sponsored this last application by initiating a project in which parts of the course have been adapted for use in high school classrooms. Teachers who find themselves teaching high school physics in spite of inadequate preparation will find that by enrolling themselves in The Mechanical Universe course and using the NSF video modules in their classes, they will be able to present their students with instruction of the highest quality.

In Arizona and South Carolina, public television stations are providing graduate level technological, engineering, and business administration courses. In Arizona, these courses are being used by IBM, Burr Brown, Hughes, Motorola, and other electronics firms, as well as the Army's electronics facility at Fort Huachaca and Sierra Vista. In South Carolina, 60 percent of the graduate degrees in business administration and engineering that are conferred by the University of South Carolina each year go to these telecast students. This service helps our Nation's work force and service men and women improve their skills and fosters our Nation's international industrial competitiveness as well.

Our public television satellite interconnected system is uniquely suited to address and meet educational needs, not only through our regular broadcast technology but also through Instructional Television Fixed Service [ITFS], a lower power broadcast technology which transmits a signal directly to specific sites. Many of our public television stations are already using this technology for exactly this purpose. At the present time, however, public television has just a few instructional television courses for our elementary students and even fewer for our junior and senior high school students. What is needed is an intensive effort to make an inventory of what we have, evaluate it, and then create the additional courses we need and distribute them.

With the steady support of NSF through the years public television has provided high-quality science programming that equally fascinates and educates its intended audience. Our audience response has shown us that we need to develop more regular series like NOVA that explore new technology and scientific innovation and more limited series like The Brain that explore specific scientific fields. The tremendous success of 3-2-1 Contact and our college courses has shown that more efforts in those areas can help conquer "science fear" in our Nation's student body.

The critical assistance and guidance provided by the National Science Foundation's Science and Engineering Education Directorate will continue to be necessary to achieving those goals. We urge you to appropriate as much as you can for the work of the National Science Foundation and that NSF be encouraged to direct as much as they can to using our nationwide system of public television stations to help bring more science information and education to all Americans.

Thank you.

STATEMENT OF PAULINE H. BROOKS, DIRECTOR OF PUBLIC TELEVISION, CHILDREN'S TELEVISION WORKSHOP

Senator GARN. Is Ms. Brooks here? Ms. Brooks is director of public television, Children's Television Workshop.

Ms. BROOKS. I am glad to be here. I am Pauline Brooks, director of public television, Children's Television Workshop. I would particularly like to urge this subcommittee and the Congress to appropriate an adequate level of funds for fiscal year 1986 to allow the National Science Foundation to continue its most vital support of science education.

The Children's Television Workshop does have a direct interest in these appropriations. Since the National Science Foundation provides partial funding of about $1.5 million a year for 3-2-1 Contact, which, as you know, is our educational television series that makes science more appealing and understandable to millions——

Senator GARN [interposing]. That is how my kids learned about the Shuttle before I went up.

Ms. BROOKS. Did you see Space Week we did for 3-2-1 Contact?

Senator GARN. I saw part of it. I was not always available. Just like we were laughing one night in space, I made the comment as we were floating around eating dinner, we are all missing James Michener's "Space" while we were up there.

Ms. Brooks. Well, you were having much more fun.

Senator GARN. I was in training for part of that, not all of it.

Ms. BROOKS. Sorry we did not do the shoot while you were going through your training; you could have been on our show, too.

We have also recently requested from NSF $5 million over 2 fiscal years for the first season of a new series on mathematics, also for 8 to 12 year olds. We understand that formal approval will be made soon and that approval will be the first and very crucial step in putting together the whole funding package needed for the series.

We anticipate other support will come from the Department of Education, the Corporation for Public Broadcasting, foundations, and a major U.S. corporation.

This new series will help address the national crisis in math education by using the power and impact of television to promote enthusiasm for an interest in mathematics, to encourage the use and application of math problem solving strategies, and to present sound mathematical content in an interesting, accessible, and meaningful manner.

We anticipate that the 65 half-hour programs will be ready for air in fall of 1986 and teachers' guides will be made available. The need for such a series is clear. American children receive trivial amounts of math and science education compared to other countries, such as Japan, such as the Soviet Union. Worse, students begin to lose interest in those topics in the upper elementary grades. Though, interestingly, math and science is a national fact of life, for better or worse; there are no television interests. Children watch every day, an average of 27 hours a week, as much time or more as they spend in school.

Since it takes time to train teachers in math and science, even introducing a mandatory curriculum will not close this gap quickly. Positive motivation, interest, and a sense that children can master these subjects needs to start in late elementary years. These are precisely the goals offered to 3-2-1 Contact in our proposed math series. Each week, about 5 million viewers watch 3-2-1 Contact at home, and with accommodation of some new programs each year and repeat airings of earlier seasons, 3-2-1 Contact is a bargain, costing only 1 penny per person per viewing.

The series also has an impact beyond the screen. More than 750,000 teachers' guides have been distributed and strong participant activities take place around the country with such organizations as the Girl Scouts and Boy Scouts of America, science museums, and 3-2-1 Contact clubs. We are concerned about our children, and we certainly know that you are, too. But if we are serious about improving our competitive edge in the coming decades, we need to give sustained attention to children's television for educational purposes. It is highly cost-effective, readily available, and appealing to rich and poor, girls as well as boys.

Federal funding is essential to assure the production of programs such as 3-2-1 Contact and our proposed math series. The NSF stands as a basic funding source in these television efforts in science and math education. With your help, they can sustain and build on the progress already achieved. the NSF Science Education Program merits and needs your continued support. Thank you.

Senator GARN. Are you aware of any studies or evaluations of public television as a medium for science and math education? Any objective studies? I mean, they are obviously very interesting, as I said. I watched with my kids and they knew more about the Shuttle, but that is just my kids. But in general, are you aware of any studies that show the effectiveness of this type of education?

Ms. BROOKS. Just talking about 3-2-1 Contact for a moment, we have never had the funds to have a complete outside evaluation made, really done in a proper way, say, by ETS, as we have in the past as for Sesame Street and Electric Company. What we have done is informal studies of children in school. Obviously, the studies do not pertain to the whole audience, but just in a school setting, we have had our researchers show the programs of children and see what they have learned from them.

It certainly does show not only do the programs motivate kids to perhaps do other activities and perhaps read science books, field expeditions, but they also do actually learn quite a bit of science, obviously particularly in the target age range.

A lot of younger kids watch it, too. They enjoy it. They, perhaps, do not get as much of the scientific content out of it, but it does rub off. We have been very pleased by the result of those studies and think it does show that it does work.

I am not aware of any national efforts in terms of other science programs.

Senator GARN. I have been very concerned about science and math education for years, not only the lack of teachers going into the field—I think in many cases, probably the only science education many children are getting is what they see on TV because of the lack of requirements in school.

Ms. BROOKS. Yes.

Senator GARN. I do not know how to reform the whole educational system. There are so many reports that come out that indicate this is the case, not just my own feelings.

I look back at my own schooling and compare it to my children's today and what I was required to take in math and science. This is not your bailiwick or our problem in television. I think the only way we can solve it, though, is to go back and make the requirements stiffer. They do in other countries. It is not by accident in Japan, Germany, and the Soviet Union that they have that additional science education. They are required to do it.

Ms. BROOKS. I think that is very important. Just because we happen to be in the TV business does not mean we do not support efforts of that kind. We think it is very important and perhaps we would not feel the need—we felt a very pressing need to do a series on math as supplemental education outside the schools.

In many respects, one should say that should not be necessary, but unfortunately, it definitely is the case. So we hope that together perhaps with stricter requirements in the future will combine to have an impact.

Senator GARN. By saying I wish there were stricter requirements to take additional requirements that that would mean the type of programming you are talking about would not be necessary. It still, to me, would have the same role of whether you are simulating or supplementing, it would be very helpful because even, as I say, my kids watching it learned more about the Shuttle than I was able to show them. I did not have the materials to bring home. I could talk, but, in fact, we watched one—I cannot remember where it was, who it was produced by—"Women in Space." Was that one of the series?

Ms. BROOKS. I think that might have been perhaps another. It was not one of ours.

Senator GARN. Far more available than I could provide them. It seems to me we need a combination. Schools to teach all of these, how you are going to adjust and I would like my children to adjust to the world, but I also would like them to learn math and science along the way.

Ms. BROOKS. Well, we will try our best.

Senator GARN. Thank you very much.

Ms. BROOKS. Thank you.

STATEMENT OF JON W. FULLER, PRESIDENT, GREAT LAKES COLLEGES ASSOCIATION

Senator GARN. Is Jon Fuller here? Mr. Fuller is president of the Great Lakes Colleges Association. We are happy to have you with us.

Mr. FULLER. I am representing the colleges that make up the Great Lakes Colleges Association, a dozen of those and another 13 of the Associated Colleges in the Midwest and Reed College. What brings those institutions together is that they are institutions which are very proud of their past record and of their continuing role in producing the future scientists and teachers of science for our Nation. Appended to the written formal testimony I have submitted a very recent study which we have made which tries to illustrate the productivity of some of these institutions when you take account of some of their relatively small size, very large percentages of their graduates go on to Ph.D.'s, including going on to Ph.D.'s in sciences.

In many ways, the contribution they make in terms of their graduates are more significant. These are people who go on to positions of significant leadership in the scientific field. I think one of the reasons for that, in those undergraduate colleges that focus on science at that point in a student's career, students learn science in an apprentice-mentor relationship, which is the way real science gets done. They acquire both an understanding and enthusiasm for it which they carry through their careers.

One of the points I want to make today is science education is really a continuous process. It starts at those very early stages that are reached by 3-2-1 Contact and reaching the elementary school programs, goes on through the high schools, crucial undergraduate years, graduate training, and out in productive careers in science.

We have been concerned, as we look at the national policies in this area, that there has been a general neglect of that area of future investment in the precollege and the college years while we focused on current expenditures and current research productivity. Certainly, we need the current research dollars and current research support, but we also need to prepare the future. That means preparing those students coming through the systems, including coming through those undergraduate colleges where so many students make their choice of a career and get started on it.

There are a couple of ways in which support by the National Science Foundation can be particularly helpful for the 4-year undergraduate college, the kinds I deal with and others like them across the country. One is by helping the faculty who teach in those colleges to have access to strict support. A faculty member teaching undergraduates are not going to have the long résumé of a research university scientist. They have other duties which take up most of their time.

When they do do research, you get a triple benefit. You get quality research; you get an involvement of undergraduates in that research so that their own education is enhanced; and you get added vitality to that teacher who is going to influence students over the years.

The NSF has responded to that concern. The previous director, Dr. Knapp, and now Mr. Block, set up a program targeted for research at undergraduate institutions. Last December I had an opportunity to come to NSF as part of an ad hoc review panel and look at that program.

I must say, we were very impressed having what we saw, the proposals were high quality; it was a highly competitive program. The success rate was significant, lower than that for the agency generally.

We found, in fact, half the awards were going to people who never had support from NSF before, but they were good quality projects, and they are going to have very significant and wide-reaching effects through this funding.

The second issue is the state of instrumentation for science instruction. NSF has helped document the serious problems about research instruments, and we acknowledge that those are serious and need to be addressed promptly, but the situation in the classrooms and in laboratories for instruction may be even worse. It has not been fully documented. We certainly know from our own experience that it is very difficult, given the rising cost of scientific instruments, to keep up the kind of current equipment that is really needed to teach first-class science.

There is a program at NSF, the College Science and Instrumental Program, which gets a high degree of leverage for the Federal dollars involved because there is primary institutional matching dollars. If they have Federal dollars, they can raise other dollars and put a piece of equipment in for a relatively small expenditure, but the Federal dollars make the difference in being able to get that equipment or not.

It is a very good program. It is only in its first year. However, they found the proposal pressure is, indeed, enormous. They appropriated $5 million last year and that is what they are proposing to do for next year. They now have reviewed the proposals. We understand they have about 750 proposals they regard as fully for funding. We have got a first-class program that is likely to grow next year.

We were disappointed that the funding levels suggested for next year by the agency was level funding. We certainly think that when the future growth for NSF becomes possible—we assume that won't be possible this year—that this be high on the priority list.

A concern that we want to express is about the precollege science education. We see the immediate products of the elementary and secondary schools when they arrive in the colleges. We recognize the serious needs for improving the quality of teaching, improving the requirements, improving the way in which we address science at that level. We are very disappointed NSF has told you they cannot spend the money that was appropriated last year for science education. Frankly, the information our faculty have in working with staff people at NSF is that there are proposals ready to fund; that that money could be responsibly spent. If they do not have enough in the precollege area, more could be very usefully added to that college science teaching program because there is an enormous need there; the proposal right there in the NSF building right now; they have been approved.

It is primarily a question of dollars that can get the equipment in the classroom, get some of the programs to improve teaching at the precollege level started.

As you look at that rescission request, we would hope that you would look at it carefully and we would encourage you not to approve it or not approve all of it, suggesting that half might be spent this year. There are proposals available on which it can be usefully spent.

A final point, when the Congress created the National Science Foundation, they gave it a dual role. Support science, which they have done very well, and the investments for the research capacity to our Nation will continue to have the scientific strength we want it to have. NSF has been inclined to neglect that. The Congress has encouraged it to pay more attention to it. We hope you will continue to. We think Congress was wise in the beginning to see that NSF have a current and future investment responsibility. Science is a long-term process. We believe a balanced approach requires us to look at the future as well as to the immediate present.

Thank you for hearing my testimony. I will be happy to answer any questions, Senator.

Senator GARN. One further comment to follow up what I said to the last two witnesses. Although my own college training ended up being in finance and banking, I think we miss a point here when we only talk about training people in science to be scientists to go on and get their bachelors and Ph.D.'s. I cannot tell you how much the science education I have has helped me, even though I have never directly used it and did not get a degree in that area. But part of it came about because of being in the Naval ROTC, you were required to take certain classes—math, a year of physics, a lot of things at the college level—in order to get your commission. But there is a thought process, a way of training your mind that comes with math and science that does not come in the other areas.

So although I would have a terribly, terribly hard time remembering very much about calculus and my more advanced physics classes, so on, still I always felt there was a training in my mind that it works, hopefully, in a more analytical way. Maybe I am the only one who thinks that way, from having had that kind of background.

So I think it is very sad, not only from the standpoint that we are not producing as many scientists, either at the bachelor levels, teachers at the junior and senior highs, or Ph.D.'s to do the research, that there is not a more general acceptance of the importance of science education.

Mr. FULLER. I absolutely agree, Senator. Certainly true from my experience. I am not a scientist either. It is helpful to me to have that background.

One of the things we are proud of in our colleges—and we think is important—the scientists learn their science in a convention that requires them to take other courses so they have an understanding of the arts, humanities, social sciences, real liberal arts training, and our liberal arts graduates focusing on economics, English, are required to take science and math as well so they have that perspective. We think it is extremely important.

Senator GARN. Thank you very much.

PREPARED STATEMENT

Mr. FULLER. I have a prepared statement I would ask be printed in the record.

[The statement follows:]

STATEMENT OF JON FULLER, PRESIDENT, GREAT LAKES COLLEGES ASSOCIATION

I am Jon Fuller, President of the Great Lakes Colleges Association. I am pleased to have been invited to appear before this subcommittee, as you consider the fiscal year 1986 appropriation for the National Science Foundation. In appearing here today, I am representing the twenty-five undergraduate liberal arts colleges which are members of the Great Lakes Colleges Association and of the Associated Colleges of the Midwest;* Reed College in Oregon also joins in supporting our position.

These institutions are proud of their past record and their continuing role in producing research scientists and teachers of science for our nation. Attached to this statement is a report on Ph.D. productivity, which takes account for the first time of differences in institutional size. This new information confirms the impressive output of scientists and scholars by the colleges I represent today, and others like them, particularly in comparison to major research institutions.

The contributions of these institutions in terms of the high quality of their graduates may be even more important than their demonstrated productivity in numbers. The apprentice-mentor relationship, which is the best way for young scientists to learn about science, is most likely to occur in the undergraduate college. The education of scientists in colleges like ours is further enhanced as they learn their science within the context of the broader range of the liberal arts.

We believe that it is extremely important that the process of science education and of the education of scientists be seen as continuous. The undergraduate years represent a crucial phase in that process, when qualified students consider and choose careers in science. With the federal concern about scientific literacy for our population, and about the production of trained scientific manpower, the role of quality undergraduate colleges needs to be kept clearly in mind and to be supported in direct and appropriate ways.

One of the ways for such support to be provided is in the form of opportunities for research by faculty members teaching at quality undergraduate colleges. These faculty members can and do carry on research of high quality, and their continued vitality as researchers is directly connected to their effectiveness as teachers of science.

We are delighted that Mr. Bloch has proposed to continue the initiative of his predecessor, Dr. Edward Knapp, in a targeted program for Research at Undergraduate Institutions.

This past December, I was part of a small ad hoc review group invited by the National Science Foundation to look at the results of the first year of the RUI Program. Naturally, we identified several improvements which can be made in the administration of the program. But we were delighted by what we learned about the first year's results. The quality of the proposals which were funded was very high, and the success rate in the RUI Program (27%) was below the overall NSF proposal success rate (33%). RUI is a very competitive program. Furthermore, the program was successful in attracting proposals from researchers who had not before received NSF support for their work. More than half of the RUI-funded proposals were awarded to scientists who had received no prior NSF grants.

Support of research being done by faculty members who are actively engaged in teaching undergraduates simultaneously produces good and needed research results and also uniquely important education for future scientists. Research at undergraduate colleges is typically carried on as an extension of teaching, involving the most promising undergraduates. This is one of the reasons that the support of research by faculty at undergraduate teaching colleges has a double value: the quality of the research itself, and the contribution it makes to the education of some our best future scientists. The NSF RUI Program deserves continued and increasing support.

A second crucial need to sustain the continued quality of science instruction at undergraduate colleges is in the area of instrumentation.

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*The members of the Great Lakes Colleges Association are DePauw, Earlham, and Wabash in Indiana; Albion, Hope, and Kalamazoo in Michigan; and Antioch, Denison, Kenyon, Oberlin, Ohio Wesleyan, and the College of Wooster in Ohio. The Associated Colleges of the Midwest include Colorado College; Knox, Lake Forest and Monmouth in Illinois; Coe, Cornell, and Grinnell in Iowa; Carleton, Macalester, and Saint Olaf in Minnesota; and Beloit, Lawrence, and Ripon in Wisconsin.

The Foundation has recently conducted a study about state of research instrumentation, documenting the growing needs in that area. Support for instructional instruments is even more sorely needed. Increasing levels of institutional investment in scientific instructional equipment cannot keep pace with the increasing costs of such equipment. State-of-the-art equipment is essential for really effective instruction in science.

The College Science Instrumentation Program (CSIP) is the only federal response to this enormous need. Our colleges certainly welcome the help that this program provides. Because of the requirement for institutional matching funds, federal funds in the CSIP Program have a high degree of leverage, and represent one of the best investments of federal science dollars.

Although we appreciate the assistance which is available through the CSIP, we regret that the Foundation is again proposing level funding of this program at only $5 million dollars. This is now one of the most competitive programs offered by the Foundation. The need for instructional equipment is simply enormous. Far more top quality proposals are being submitted than can be supported at present budget levels. We understand that approximately 750 proposals were deemed worthy of support in the peer review process, with total requests of $21 million. The present $5 million in this program will allow funding of only about 200 grants. Experience shows that the first year of any NSF grant program draws fewer proposals than will be submitted after the program is established and known. We therefore believe that the CSIP program ought to be one of the first areas to share in any overall growth of the NSF budget.

There has been some additional assistance for scientific instrumentation at undergraduate colleges through the RUI Program. Instruments purchased with support from that program are primarily for a particular research purpose. However, faculty members at undergraduate institutions always find some way to get instructional benefit from any equipment which is available.

Scientists at our colleges are much concerned, as I know members of this committee also are, that the National Science Foundation has again asked to defer expenditure of dollars already appropriated for science and mathematics education at the pre-college level. There is certainly an enormous need for improvement in science and mathematics instruction at that level, as NSF itself has helped to document. From the experience of our institutions, there is no shortage of quality proposals, each of which could make an appropriate and needed contribution to the improvement of science education. Frankly, we do not believe that any administrative problems at the Foundation should prevent these dollars, already appropriated by the Congress, from being put to work promptly so that teachers and students in our elementary and secondary schools can benefit from improvements in the quality of science and math instruction.

Although the authorizing statute of the National Science Foundation gives it responsibility for science education as well as for the support of research, officials at the Foundation have been consistently reluctant over several years to take those responsibilities seriously. Our nation has important current needs for research, but we will also have comparable needs for research in the future. If we put all of our resources into funding current research, and none into preparing the scientists and the teachers of science for the future, we will put our national security into real jeopardy. We would therefore strongly urge you to press the Foundation to spend the few science education dollars already appropriated. We hope that you will also press them to devise appropriate additional programs, to meet science education needs at all levels, including the crucial undergraduate years which are totally neglected by the present NSF science education programs. This is a neglect which we will continue only at our national peril.

We appreciate this opportunity to appear before the subcommitte and to offer these particular views from a perspective of the quality undergraduate college.

Analysis of Leading Undergraduate Sources of Ph.D.'s Adjusted for Institutional Size

This study was conducted to provide an analysis which takes into account the varying sizes of institutions in comparing their Ph.D. productivity.

The average size of the graduating class for each institution was calculated for the 30 years 1946-1976. Allowing a "normal" minimum period of four years for earning a Ph.D., these data were compared with data on Ph.D.'s earned for 1951-1980.

This report focuses on several groups of institutions, including the universities of the Ivy League, the colleges belonging to the Great Lakes Colleges Association and the Associated Colleges of the Midwest, the Big Ten universities, those institutions which have produced the largest total number of Ph.D.'s during this period, and those institutions most productive relative to their size.

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Baccalaureate Origins of Doctorate Recipients

Great Lakes Colleges Association

GLCA	Total Ph.D.'s 1951-80	Average Ph.D.'s 1951-80	Average Bachelor's Degrees Conferred 1946-76	Productivity Ratio
Albion	382	12.7	268.9	4.7
Antioch	875	29.2	264.3	11.0
Denison	527	17.6	329.2	5.3
DePauw	874	29.1	430.6	6.8
Earlham	476	15.9	173.5	9.1
Hope	559	18.6	264.3	7.0
Kalamazoo	427	14.2	152.8	9.3
Kenyon	348	11.6	143.5	8.1
Oberlin	2321	77.4	432.6	17.9
Ohio Wesleyan	682	22.7	469.3	4.8
Wabash	501	16.7	129.1	12.9
Wooster	868	28.9	278.2	10.4
Total	8840	294.7	3336.4	
Group Average	736.7	24.6	278.0	8.8

Baccalaureate Origins of Doctorate Recipients

Associated Colleges of the Midwest

ACM	Total Ph.D.'s 1951-80	Average Ph.D.'s 1951-80	Average Bachelor's Degrees Conferred 1946-76	Productivity Ratio
Beloit	433	14.4	222.1	6.5
Carleton	993	33.1	242.0	13.7
Coe	231	7.7	160.3	4.8
Colorado	390	13.0	256.0	5.1
Cornell	338	11.3	153.8	7.3
Grinnell	706	23.5	206.2	11.4
Knox	473	15.8	202.8	7.8
Lawrence	493	16.4	238.0	6.9
Lake Forest	212	7.1	188.6	3.7
Macalester	462	15.4	300.8	5.1
Monmouth	222	7.4	164.7	4.5
Ripon	190	6.3	128.2	4.9
St. Olaf	776	25.9	401.2	6.4
Total	5919	197.3	2864.7	
Group Average	455.3	15.2	220.4	6.9

Baccalaureate Origins of Doctorate Recipients

Ivy League Universities

Ivy League	Total Ph.D.'s 1951-80	Average Ph.D.'s 1951-80	Average Bachelor's Degrees Conferred 1946-76	Productivity Ratio
Brown (RI)	1977	65.9	796.5	8.3
Columbia (NY)	3703	123.4	1974.6	6.2
Cornell (NY)	5329	177.6	1894.7	9.4
Dartmouth (NH)	1771	59.0	729.8	8.1
Harvard (MA)	5554	185.1	1818.7	10.2
U. of Pennsylvania (PA)	2703	90.1	1820.6	4.9
Princeton (NJ)	2713	90.4	771.3	11.7
Yale (CT)	3407	113.6	1280.1	8.9
Total	27157	905.2	11086.1	
Group Average	3394.6	113.2	1385.8	8.2

Baccalaureate Origins of Doctorate Recipients

Big Ten Universities

Big Ten	Total Ph.D.'s 1951-80	Average Ph.D.'s 1951-80	Average Bachelor's Degrees Conferred 1946-76	Productivity Ratio
U. of Illinois (IL)	6761	225.4	4229.9	5.3
Indiana U. (IN)	2784	92.8	2859.4	3.2
U. of Iowa (IA)	2148	71.6	1922.8	3.7
Michigan State U. (MI)	3973	132.4	4245.0	3.1
U. of Michigan (MI)	6569	219.0	3798.0	5.8
U. of Minnesota (MN)	5321	177.4	4539.8	3.9
Northwestern U. (IL)	2770	92.3	1886.4	4.9
Ohio State U. (OH)	4615	153.8	4192.5	3.7
Purdue U. (IN)	3786	126.2	2711.9	4.6
U. of Wisconsin-Madison (WI)	6049	201.6	3778.7	5.3
Total	44776	1492.5	34164.3	
Group Average	4477.6	149.3	3416.4	4.4

Baccalaureate Origins of Doctorate Recipients

25 Leading Baccalaureate Sources of Ph.D.'s
(Total Number of Ph.D.'s)

Rank By Total Number	Institution	Total Ph.D.'s 1951-80	Average Ph.D.'s 1951-80	Average Bachelor's Degrees Conferred 1946-76	Productivity Ratio
1	U. California-Berkeley (CA)	8801	293.4	4399.7	6.7
2	CUNY:City College NY)	6893	229.8	2679.9	8.6
3	U. of Illinois—Urbana (IL)	6761	225.4	4229.9	5.3
4	U. of Michigan (MI)	6569	219.0	3798.0	5.8
5	U. of Wisconsin-Madison (WI)	6049	201.6	3778.7	5.3
6	U. of California-LA (CA)	5717	190.6	3545.6	5.4
7	Harvard (MA)	5554	185.1	1818.7	10.2
8	Massachusetts Institute of Technology (MA)	5438	181.3	863.3	21.0
9	Cornell (NY)	5329	177.6	1894.7	9.4
10	U. of Minnesota-Minneapolis (MN)	5321	177.4	4539.8	3.9
11	CUNY:Brooklyn (NY)	4817	160.6	2398.9	6.7
12	U. of Texas-Austin (TX)	4684	156.1	3883.1	4.0
13	Ohio State U. (OH)	4615	153.8	4192.5	3.7
14	Pennsylvania State U. (PA)	4440	148.0	3766.1	3.9
15	New York U. (NY)	4230	141.0	3284.2	4.3
16	Michigan State U. (MI)	3973	132.4	4245.0	3.1
17	U. of Chicago (IL)	3805	126.8	710.9	17.8
18	Purdue (IN)	3786	126.2	2711.9	4.6
19	Stanford (CA)	3703	123.4	1528.6	8.1
20	Columbia (NY)	3703	123.4	1974.6	6.2
21	U. of Washington (WA)	3484	116.1	3369.7	3.4
22	Rutgers (NJ)	3469	115.6	2372.0	4.9
23	Yale (CT)	3407	113.6	1[illegible]90.1	8.9
24	U. of Utah (UT)	2862	95.4	166[illegible].6	5.7
25	Iowa State U. (IA)	2844	94.8	1926.2	4.9
Total		120254	4008.5	70852.4	
Group Average		4810.2	160.3	2834.1	5.7

Baccalaureate Origins of Doctorate Recipients

50 Most Productive Institutions
(Adjusted for Institutional Size)

Rank	Institution	Total Ph.D.'s 1951-80	Average Ph.D.'s 1951-80	Average Bachelor's Degrees Conferred 1946-76	Productivity Ratio
1	Harvey Mudd (CA)	257	21.4	52.6	40.7
2	California Institute of Technology (CA)	1818	60.6	151.6	40.0
3	Reed (OR)	968	32.3	127.5	25.3
4	Massachusetts Institute of Technology (MA)	5438	181.3	863.3	21.0
5	Swarthmore (PA)	1418	47.3	226.3	20.9
6	Haverford (PA)	683	22.8	121.4	18.7
7	Oberlin (OH)	2321	77.4	432.6	17.9
8	U. of Chicago (IL)	3805	126.8	710.9	17.8
9	New College (FL)	63	15.7	98.0	16.1
10	U. California-San Diego (CA)	362	90.5	643.0	14.1
11	The Cooper Union (NY)	602	20.1	145.6	13.8
12	Amherst (MA)	1118	37.3	271.7	13.7
13	Pomona (CA)	1066	35.5	259.6	13.7
14	Carleton (MN)	993	33.1	242.0	13.7
15	Brandeis (MA)	893	47.0	348.3	13.5
16	Wabash (IN)	501	16.7	129.1	13.0
17	Rice (TX)	1501	50.0	392.0	12.8
18	Bryn Mawr (PA)	593	19.8	158.6	12.5
19	Wesleyan (CT)	877	29.2	236.5	12.4
20	Princeton (NJ)	2713	90.4	771.3	11.7
21	Grinnell (IA)	706	23.5	206.2	11.4
22	U. of California-Irvine (CA)	299	99.7	883.2	11.3
23	Eckerd (FL)	119	17.0	152.0	11.2
24	Antioch (OH)	875	29.2	264.3	11.0
25	U. of California-Riverside (CA)	897	56.1	508.8	11.0
26	College of Wooster (OH)	868	28.9	278.2	10.4
27	St. John's (MD)	117	3.9	37.5	10.4
28	Radcliffe (MA)	923	30.8	301.7	10.2
29	Harvard (MA)	5554	185.1	1818.7	10.2
30	Davidson (NC)	599	20.0	202.4	9.9
31	Williams (MA)	835	27.8	283.2	9.8
32	New School for Social Research (NY)	99	4.0	40.8	9.7
33	Columbia U.-Barnard (NY)	1163	38.8	409.3	9.5
34	Cornell (NY)	5329	177.6	1894.7	9.4
35	Hamilton (NY)	507	16.9	180.6	9.4
36	Kalamazoo (MI)	427	14.2	152.8	9.3
37	Earlham (IN)	476	15.9	173.5	9.1
38	Rensselaer Polytechnic Institute (NY)	1929	64.3	711.7	9.0
39	Johns Hopkins (MD)	1524	50.8	571.4	8.9
40	Yale (CT)	3407	113.6	1280.1	8.9

Baccalaureate Origins of Doctorate Recipients

50 Most Productive Institutions
(Adjusted for Institutional Size) (continued)

Rank	Institution	Total Ph.D.'s 1951-80	Average Ph.D.'s 1951-80	Average Bachelor's Degrees Conferred 1946-76	Productivity Ratio
41	Bowdoin (ME)	578	19.3	217.8	8.8
42	U. of California-Santa Cruz (CA)	262	65.5	743.9	8.8
43	CUNY:City College (NY)	6893	229.8	2679.9	8.6
44	U. of Rochester (NY)	2056	68.5	804.9	8.5
45	Wellesley (MA)	1002	33.4	395.3	8.4
46	Carnegie-Mellon (PA)	1678	55.9	668.9	8.4
47	Brown (RI)	1977	65.9	796.5	8.3
48	Occidental (CA)	780	26.0	315.2	8.2
49	Kenyon (OH)	348	11.6	143.5	8.1
50	Dartmouth (NH)	1771	59.0	729.8	8.1
Total		71988	2708.1	24228.7	
Group Average		1439.8	54.2	484.6	11.2

STATEMENT OF JOHN K. CRUM, EXECUTIVE DIRECTOR, AMERICAN CHEMICAL SOCIETY

Senator GARN. Is Dr. John Crum here?

Dr. Crum, I am going to apologize to you in advance. That is a vote and I will ask you to start your testimony and I will stay here as long as I can, and then if you will continue to finish your testimony, I will race over to the floor and get back as fast as I can for the next witness.

Mr. CRUM. Very good.

Senator GARN. I can control a lot of things, but not when those lights go off.

Mr. CRUM. Thank you, Mr. Chairman. I am John Crum, executive director of the American Chemical Society. I am appearing before you today with the approval of the association's board of directors to present the highlights of the statement we wish to make in support of the National Science Foundation's fiscal year 1986 budget.

As the world's largest scientific society dedicated to a single discipline, the American Chemical Society is convinced the importance of basic research for the national well-being must be fully recognized. As a result of advances in chemistry and emergence of more powerful instrumental techniques, we are entering a new era of productive inquiry. Chemical science is the backbone of today's chemical and allied products industries and also underly other high technology industries, such as biomaterials, computers, electronics, robotics, and biotechnology; new energy processes, high performance plastics, medical science, biomaterials, and new electronic materials and devices. Basic research in chemistry is critically important to the entire range of interdisciplinary research. It contributes to the understanding of such diverse areas of synthesis and properties of metals, ceramics, polymers, adhesion, wear, corrosion, biocompatibility, and the electronic optical and magnetic behavior and materials.

The society believes the National Science Foundation plays a key role in sharing opportunities in basic chemical research and, in particular, in those research areas that are not pursued by the mission agencies. The Foundation is also concerned with the health of the scientific and education structure.

Our major points on the Foundation's budget relate to these roles. First, the society believes that the National Science Foundation cannot adequately explore the promising areas of basic chemical research within the constraints of the proposed fiscal year 1986 budget. The opportunities before us justify even in a time of physical restraint, a larger amount than is proposed. Without such funding, the United States risks losing its leadership in fields such as materials and biotechnology.

The challenge from Japan in these areas of biotechnology and science is of particular concern.

Second, the American Chemical Society supports the Foundation's role in precollege science and mathematics education. It is a vital tool to people pursuing careers in science. In fact, the society feels that more funding is needed than has been requested.

Specifically, we recommend that the fiscal year 1986 budget for the directorate of science and engineering education be set at a minimum of $113.5 million. This level of funding can be achieved by using the fiscal year 1985 currently and $82 million as the base for the fiscal year 1986 budget, and returning the $31.5 million in deferred funds.

Third, the society supports the National Science Foundation's efforts to assist both research and undergraduate institutions in meeting their instrumental needs. The Foundation should seek ways to strengthen coordination of Government efforts in this area.

Fourth, the society recommends that the National Science Foundation assess the country's current and projected need for new or renovated scientific facilities. Since the facilities problem needs to be addressed immediately, a renovation program should be considered as a first step and funded in the Foundation's fiscal year 1987 budget.

Further, the society endorses a system of merit based review for such a Facility Renovation Program.

In conclusion, we should note that when food production and energy and technology are taken into account, an estimated 40 percent of our Gross National Product is derived from the chemical sciences. The chemical industry shipments abroad yielded a trace surplus that have averaged $10.6 billion per year from 1979 to 1983, making the U.S. chemical and related industries a vital contributor to the strength of the Nation's economy.

Advances in the Nation's industires and subsequent scientific and technological leadership by the United States will depend upon continued support of research in the basic chemical sciences and upon experienced people trained in chemical and related sciences. The American Chemical Society appreciates the opportunity to address the subcommittee and offers its continued assistance in the future.

Senator GARN. Thank you, Dr. Crum. In your prepared remarks, you urge the subcommittee to increase the NSF science education budget for 1986 to $113 million.

Mr. CRUM. Right.

Senator GARN. This is $31.5 million over the current request. You also urge the subcommittee to give chemistry high priority attention. I presume from your testimony the 7-percent increase in the NSF budget does not reflect the priority you think should be attached to chemistry. Assuming new money is not available, which NSF programs should this subcommittee reduce to accomplish your recommendations?

Mr. CRUM. We do not have any recommendations for reduction of any budgets. We do want to stress we want to support the education directorate in particular because we think they are now prepared to carry forth those things they have been designed for and which they were understaffed previously.

Senator GARN. Thank you very much. Your prepared statement will be inserted in the record at this point.

[The statement follows:]

STATEMENT OF DR. JOHN K. CRUM, EXECUTIVE DIRECTOR, AMERICAN CHEMICAL SOCIETY, ON BEHALF OF THE AMERICAN CHEMICAL SOCIETY

Mr. Chairman and Members of the Subcommittee: My name is John K Crum. I am Executive Director of the American Chemical Society, and I appear before you today with the authorization of the Society's Board of Directors.

The American Chemical Society welcomes this opportunity to present its views on the proposed FY 1986 budget for the National Science Foundation. Our comments focus on the NSF Chemistry Division, instrumentation, facilities, the Directorate for Science and Engineering Education, and the Directorate for Scientific, Technological, and International Affairs.

NSF CHEMISTRY DIVISION

The American Chemical Society urges that increased funding for chemical research be given a high priority in the deliberations of the Subcommittee. In proportion to its contribution to the economy, chemistry has been and is currently underfunded.

Chemistry is entering a new era of productive inquiry as a result of advances in the understanding of the elemental steps of chemical change, and the existence of powerful instrumental techniques. The February 22, 1985 issue of Science magazine is devoted to exciting areas of chemistry which are indicative of this potential. However, chemistry's contribution to the Nation will not be fully realized unless the base funding support for the chemical sciences is increased and this increase is sustained.

Chemistry is a fundamental, central discipline from which many other sciences flow. The chemical sciences have been instrumental in the development of U.S. society, and they likewise will play a significant role in our Nation's future. These sciences are not only the backbone of today's chemical and allied products industries, but they also underlie the high technology industries, such as computers, electronics, robotics, and biotechnology. An estimated forty percent of the U.S. GNP is derived from the chemical sciences if food production and energy technology are taken into account. The chemical industry's shipments abroad yielded a trade surplus that averaged $10.6 billion per year from 1979-1983, making the U.S. chemical and related products industry a strong international competitor. Advances in these industries, and subsequent scientific and technological leadership by the U.S., will depend upon continued support of research in the basic chemical sciences as well as experienced personnel trained in the chemical and allied sciences.

While the Chemistry Division is the major source of funds for basic chemical research at NSF, other Divisions of the Foundation support related activities. The following remarks will be limited to the Chemistry Division, but these comments, in principle, could be extended to all NSF funding for the chemical sciences.

The NSF FY 1986 budget request for the Chemistry Division is 7.0 percent above the FY 1985 current plan. However, in order to address the significance of the proposed budget, the real magnitude of the increase needs to be examined in relation to prior funding patterns and future growth potential. It is important to recognize that although we are in a time of budget austerity, we must not lose opportunities for scientific advancement. These opportunities are available to us in the subfields of chemistry and in interdisciplinary research involving chemistry.

The FY 1986 budget is best understood if placed in a historical context. The funding history of the Chemistry Division in current and constant dollars is presented in Appendix I. Budget appropriations for basic research in chemistry have increased 2.5 times during the period 1973 to 1985. However, in estimated constant 1972 dollars, this increase represents an uneven growth pattern in funding of the Division which averages out to only a four percent annual increase. These figures indicate that basic chemical research has simply maintained a marginal growth when inflation is taken into consideration during this period. Maintenance or even low-level growth is insufficient when considering the contributions that the chemical sciences have made and will make to American society.

In the ACS analysis of the FY 1985 and 1986 budgets for the Chemistry Division, we have subtracted out the amounts earmarked for the two new initiatives--Chemistry of Life Processes and Materials Chemistry. This calculation indicates that the costs of the new program initiatives have been partly absorbed by the established subactivities of the Chemistry Division [Appendix II]. The Division will continue to deny high quality proposals in these established areas because of insufficient funds. Since the number of investigators receiving scientific research project support will remain at approximately 875, these new initiatives will make funding decisions more difficult starting in FY 1985.

Broad support for basic research across subfields is vital to the advancement of chemistry since it is impossible to predict where discoveries will occur. The consequence of not pursuing all good research translates into lost opportunities that in the long-term will be detrimental to the health of science and to the economy as well. Moreover, support by NSF of basic research is important to the health of chemistry as a discipline, particularly at academic institutions since the Chemistry Division in FY 1984 provided forty-one percent of the federal support for basic chemical research performed at universities and colleges.

The ACS favors setting research priorities and understands the need to cut back programs in order to reduce the federal budget deficit. However, the Society believes that the proposed funding level for the NSF is by no means the optimum. The opportunities before us in the chemical sciences would justify--even in a time of fiscal restraint--a far larger amount than is proposed.

Other scientific organizations have recognized the importance to the Nation of supporting promising chemical research areas. The National Academy of Sciences panel, which briefed the Office of Science and Technology Policy on chemistry in 1983, noted three such research areas in which a substantial infusion of federal funding would allow the exploration of new territory on the cutting edge of chemical science. These frontiers are: (1) chemical reactivity, (2) chemical catalysis, and (3) chemistry of life processes.

Only one of these areas, chemistry of life processes, has been targeted for specific NSF funding. The chemistry of life processes involves the application of basic chemistry techniques and principles to the solution of molecular life processes. Failure to fund sufficient research on the chemical aspects of biology could cost the U.S. its leadership in biotechnology and applied biology.

The NAS panel suggested that the chemistry of life processes be funded at a level of $25 million per year, with $10 million of this yearly amount available as grants. NSF funding for the Chemistry of Life Processes initiative is significantly below these recommended amounts. This means that many excellent research proposals in this emerging area will be inadequately funded or will not be supported at all.

In the Society's view, NSF plays a key role in ensuring the exploration of opportunities in basic chemical research in areas that are not pursued by the mission agencies. The Society believes that NSF cannot adequately perform this function within the constraints of the proposed FY 1986 budget. Consequently, ACS urges that funding for chemical research be given a high priority in the Foundation's FY 1986 budget.

INSTRUMENTATION

Achieving progress in the research areas receiving Foundation support depends on access to modern instrumentation. The survey conducted in 1982 by the ACS Committee on Science--"Instrumentation Needs of Academic Departments of Chemistry"--found that the average age of the instrumentation in U.S. chemistry departments was between eight and nine years [Appendix III]. In the experience of laboratory managers, retaining most instrumentation beyond seven or eight years is unwise. Given new developments in the field, instruments continuously become scientifically and technologically obsolete. The ACS survey results also indicated that fifteen percent of the equipment at smaller chemistry departments, and nine percent at major ones, was not fully operational in 1982. Therefore, given the age of the equipment, maintenance becomes an increasing problem.

The ability of chemists in academe to conduct research at the cutting edge of science is limited by the age and condition of their equipment. The ACS estimated that the one hundred major U.S. chemistry departments would need $83.2 million for instrument purchases; the 470 smaller chemistry departments would need $65.5 million. The Society projected that with the addition of maintenance, technical support, and other ancillary costs, $500 million may be required to update and maintain equipment in a manner necessary to ensure progress in chemical research. The need, as estimated by the ACS study, is so great that both private sources and government programs must be utilized to address this problem.

The ACS is aware of the National Science Foundation's efforts to survey the need for and to fund instrumentation purchases. The Society especially commends the Foundation for assisting both research and undergraduate institutions in this area.

The ACS Office of Science Policy Analysis recently conducted a survey of all the current federal programs funding instrumentation purchases. As a result of the survey, the Society noted that federal program managers were not always aware of the working details of federal instrumentation programs other than their own. The implications of this situation are that, without an exchange of experiences and information, designing the best possible instrumentation program is a difficult, if not impossible task. The magnitude of the instrumentation problem for chemistry and other disciplines is so great that a more coordinated effort is necessary. The American Chemical Society strongly urges the Foundation to strengthen the interactions of the Interagency Working Group on Research Instrumentation so that governmental efforts in this crucial area could be made more efficient and cost-effective.

The American Chemical Society also supports the NSF's continuing commitment to increase access to supercomputers for academic research scientists and engineers. In 1984 the ACS Task Force on Large-Scale Computing completed a review of the kinds of critical chemical research problems that can be studied within a reasonable amount of time only with the use of a supercomputer. The Task Force concluded that supercomputers are an important component in sustaining the health of chemistry.

FACILITIES

In the past, campus "bricks and mortar" has been the responsibility of the public and private sectors. Academic institutions have obtained funding from a variety of sources--alumni funds, corporate grants, foundation grants, and federal government awards. The American Chemical Society believes this should be the continued method of obtaining facilities funding. No one should expect the federal government to solve single-handedly the facilities problem.

The exact magnitude of the facilities problem is not known, but there is a large and growing recognition of the need for funds to build and restore scientific research and education facilities. The ACS recommends that the NSF assess the country's current and projected need for new or renovated scientific facilities. Once such a nationwide assessment has been done, it can serve as a guideline for the consideration of future requests. The National Science Foundation already administers the data collection for instrumentation needs at universities. A similar data base should be assembled and maintained to assess future needs for university scientific facilities.

Although it is difficult to determine the scope of the facilities problem, it needs to be addressed now. One less costly method of dealing with the immediate problems in this area would be to initiate a renovation program rather than fund new starts for R&D and education facilities. Renovation funds should be used for modernizing the necessary safety features, such as fume hoods, needed in both research and teaching laboratories. The American Chemical Society urges that a renovation program be considered for funding in the FY 1987 NSF budget to address the problem of deterioration and obsolescence of existing facilities. Further, the Society endorses some form of merit-based review for such a federal renovation program.

In this time of attempting to control and reduce federal budget deficits, the university community needs to acknowledge and endorse merit-based review as a proven mechanism for and an essential component of choosing high quality projects. In the mid-1970's to early 1980's, the merit-based review process received close scrutiny and only minor changes. Currently, this process is still the most equitable way of guaranteeing careful scrutiny of and excellence in federally-funded basic research projects while assuring the best use of scarce federal funds. Consequently, ACS recommends that some form of merit-based review be established to select the highest quality facility projects.

SCIENCE AND ENGINEERING EDUCATION

The American Chemical Society supports the overall goals of the NSF Directorate for Science and Engineering Education and stands ready to offer its assistance. Specifically, the ACS commends the Directorate for emphasizing the science and mathematics taught in the middle and elementary schools of the U.S. The ACS recognizes good teaching at these levels to be of crucial importance to the development of a scientifically-informed citizenry, and the Society has established a Prehigh School Science Office to work with other concerned groups and associations on the many problems in this area.

The need to support precollege education in science and mathematics has been clearly recognized in a series of reports produced by a number of prominent national commissions. The ACS's own "Tomorrow" report published in April 1984 explicitly enumerates the Society's concern for adequate support of both teacher preservice and inservice training and for the development of new materials for grades K through 12 science education [Appendix IV]. Regrettably, it is in these two areas that the Directorate is, in effect, "losing" funds through the budget deferral process. The ACS is sympathetic to the management concerns of the Directorate, but deplores the need to defer funds from year-to-year. The Society is confident that the Directorate will continue its status as the lead agency in the area of science, mathematics, and engineering education. In order for the Directorate to accomplish this, ACS recommends that: the FY 1985 current plan of $82.0 million be set as the base for the Directorate's FY 1986 budget and that the $31.5 million in deferred funds be returned to the Directorate budget. This additional support should be allocated to the Materials Development and Research subactivity and the Teacher Enhancement and Informal Science Education subactivities, increasing their allotments to $38.4 and $40.8 million, respectively. Our recommendation is that the overall FY 1986 budget of the Directorate for Science and Engineering Education be set at $113.5 million. In making this recommendation, the ACS intends that new money be added to the $31.5 million deferral in order not to reduce support for research in the disciplines funded by NSF.

The American Chemical Society recognizes, as does the Directorate, the importance of working in partnership with others and of establishing communication networks in support of excellence in science and engineering education for all levels of students. The ACS stands ready to give its support to the Directorate in expanding and maintaining such networks.

Finally, the ACS is pleased with the continued support of Presidential Young Investigator Awards. The NSF should be applauded for its continued support of Graduate Research Fellowships through its Research Career Development subactivity. However, the American Chemical Society does recommend that some portion of these funds be awarded directly to institutions of higher learning as competitive block grants for support of their own graduate fellowship programs. The effect of currently awarding all funds to individual students is to channel recipients of these portable fellowships into a few prestigious institutions, resulting in an inequitable distribution of funds and a weakening of promising research programs at other universities. Science only thrives through the creative interplay of diverse ideas as expressed through research conducted at a variety of institutions.

SCIENTIFIC, TECHNOLOGICAL, AND INTERNATIONAL AFFAIRS

At a time when international scientific cooperation is an avenue to world peace and economic development, cuts in the International Cooperative Scientific Activities program in the Directorate for Scientific, Technological, and International Affairs (STIA) are viewed by the ACS as counterproductive. The American Chemical Society believes it is very much in the government's interest to provide support for activities such as attendance at international scientific and engineering conferences, formation of cooperative research and development projects, provision for scientific journals, and reciprocal lecture tours. Support for these activities is the responsiblity of a number of federal departments and agencies, but NSF should have primary responsibility, especially in areas involving basic research.

The ACS applauds the Foundation's continued priority under STIA for research support for undergraduate institutions, women, and minority scientists. The American Chemical Society is pleased that funding has doubled for Research Opportunities for Women and that the program is concerned with career reentry.

The National Charter of the American Chemical Society imposes an obligation upon the Society to provide advice to the government in matters of national concern related to its areas of competence. One of the objectives set forth in the ACS Federal Charter is the promotion of research and the advancement of education. With this objective in mind, we hope that our comments will be useful to the Subcommittee in its deliberations on the FY 1986 budget of the National Science Foundation.

NSF
Chemistry Division Appropriations History 1973-1986
(000 Omitted from Dollar Amounts)

Fiscal Year	Actual/Proposed	GNP Deflator	Constant (1972) Dollars
1973	$25,081	1.044	$24,024
1974	26,645	1.125	23,684
1975	32,728	1.246	26,266
1976	34,650	1.332	26,014
1977	40,226	1.424	28,249
1978	43,050	1.520	28,322
1979	45,230	1.651	27,396
1980	51,451	1.776	28,970
1981	57,622	1.953	29,504
1982	61,356	2.093	29,315
1983	67,628	2.176	31,079
1984	79,427	2.259	35,160
1985	87,400 (proposed)	2.341*	37,334
1986	93,500 (proposed)	2.443*	38,273

*The GNP deflators for 1985 and 1986 are estimates

SOURCE: National Science Foundation

Prepared by: American Chemical Society

NATIONAL SCIENCE FOUNDATION
CHEMISTRY DIVISION

(000 Omitted from Dollar Amounts)

Program Title	FY 1984 Actual	FY 1985 Current Plan	FY 1986 Proposed	% Increase 1985-1986
Chemistry of Life Processes [a]	0	$ 2,000	$ 3,500	75.0%
Materials Chemistry Initiative [b]	0	0	$ 900	100.0%
Remaining Chemistry Division	$79,427	$85,400	$89,100	4.3%
TOTAL, Chemistry Division	$79,427	$87,400	$93,500	7.0%

[a] Funding from the Biological, Behavioral, and Social Sciences Directorate for the Chemistry of Life Processes:
FY 1985, $1.5 million;
FY 1986, $1.0 million (estimate).

[b] Funding from the Materials Research Division for the Materials Chemistry Initiative:
FY 1986, $0.9 million (estimate).

SOURCE: National Science Foundation

INSTRUMENTATION NEEDS OF ACADEMIC DEPARTMENTS OF CHEMISTRY—A SURVEY STUDY

REPORT OF A JOINT TASK FORCE OF THE COMMITTEE ON SCIENCE AND COMMITTEE ON CHEMISTRY AND PUBLIC AFFAIRS, AMERICAN CHEMICAL SOCIETY

ACKNOWLEDGMENTS

The survey was initiated by a Task Force of the ACS Joint Board-Council Committee on Science consisting of Dr. I. Dwaine Eubanks, Dr. Herbert D. Kaesz, and Dr. Jordan J. Bloomfield, Chairman. The survey instrument was prepared, distributed, and the results compiled by Bob Jones and Harry Foxwell of the ACS Department of Professional Services. The survey data were analyzed by a joint Task Force of ComSci and CCPA consisting of Dr. Jordan J. Bloomfield, Dr. Robert T. Paine, Dr. Arthur F. Findeis, Dr. Herman L. Finkbeiner and Dr. Don I. Phillips. Stuart A. Borman, Associate Editor of ANALYTICAL CHEMISTRY, and L. N. McLeland of the ACS Department of Public Affairs, assisted in preparing the narrative report.

AMERICAN CHEMICAL SOCIETY

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EXECUTIVE SUMMARY

There is almost a total lack of information on the state of instrumentation at U.S. college and university chemistry and chemical engineering departments. In an effort to correct this situation, the ACS Committee on Science conducted this survey to obtain information on this important subject.

A questionnaire was mailed to 50 major chemistry departments, 112 smaller chemistry departments, and 25 chemical engineering departments. The survey consisted of a series of questions on two broad subjects--the current inventory at the surveyed institutions, and the needs for instrumentation. Responses were received from 32 major and 71 smaller chemistry departments, and 13 chemical engineering departments.

Since only 13 chemical engineering departments responded, 10% of the total number of departments accredited by the American Institute of Chemical Engineers, reliable statistical analysis of the data on chemical engineering departments was not possible and does not form part of this report.

The data indicated that the median value of on-hand instrumentation at major institutions was $3.3 million, while at smaller institutions the median was $104,000. The average age of the instrumentation was between eight and nine years, with the instrumentation at smaller institutions being the older on average.

The seven instruments most commonly mentioned as being either on-hand or most needed were the UV-visible spectrophotometer; gas chromatograph; nuclear magnetic resonance spectrometer; infrared spectrophotometer; mass spectrometer; liquid chromatograph; and atomic absorption spectrometer. These instruments constituted 54.6% of the major institutions' current inventory, and 72.2% of the smaller institutions' inventory.

Instrumentation is usually designated for either research training or undergraduate instruction and sometimes for these two combined. Larger institutions devote three times as much instrumentation for research training as for undergraduate instruction. Predominantly undergraduate institutions devote almost four times the instrumentation for undergraduate instruction as do the major institutions.

Regarding instrument condition, 15% of the instrumentation was not fully operational at smaller chemistry departments and 9% at major ones. Given that the instrumentation is between eight and nine years old, maintenance is a severe problem, particularly at smaller schools where trained technicians are all but nonexistent.

As instrumentation ages, obsolescence becomes more prevalant as well. The increased use of microprocessors, the development of totally new technologies, and the evolutionary improvement of old ones over the past decade have all combined to render instrumentation at the institutions surveyed generally obsolete.

In addition to a profile of the current inventory, an assessment of the respondents' needs for new instrumentation was made. Highlights include:

- a finding that the seven most common instruments make up 73% of the needs at smaller chemistry departments
- NMR instrumentation is needed most by the chemistry departments
- Major institutions plan to use needed instrumentation in roughly the same mix as currently held instrumentation, whereas smaller institutions want to use needed instrumentation for both research and instruction.

Regarding the cost of meeting instrumentation needs, the task force estimates that the 100 major U.S. chemistry departments would need $83.2 million for instrument purchases; the 470 smaller chemistry departments would need $65.5 million. When maintenance and other ancillary costs are included, a total of $500 million may be required.

Among the study recommendations:

- funding agencies should enlarge support for instrumentation purchases, for both research and instruction
- additional ways to finance instrumentation purchases should be explored
- grants for purchase of instrumentation should allow for maintenance costs

I. INTRODUCTION

During the past few years concern has grown in the science and engineering community about the increasing age and technical obsolescence of scientific instrumentation in U.S. colleges and universities. Without state-of-the-art instruments, scientific research efforts suffer and the quality of education provided to a new generation of scientists and engineers is placed in jeopardy. This would be particularly true in chemistry which has evolved in the last decades into a very instrument-intensive discipline. In response to these concerns, the Committee on Science of the American Chemical Society (ACS) conducted this survey study on instrumentation needs in academic departments of chemistry and chemical engineering.

A. Objective of Survey

At the time this survey was initiated, there existed very little data on instrumentation used in chemistry and chemical engineering departments. A 1980 report[1] prepared by the Association of American Universities for the National Science Foundation contained selective information on the instrumentation needs in chemistry gathered through site visits at 16 major research universities. Another study[2] supported by the National Science Foundation to test the feasibility of developing indicators of instrumentation inventory, utilization, and needs in academic institutions was still under way at the time. It was expected to produce sample data representative of 38 academic institutions in four science and engineering subfields, including organic chemistry. Particularly lacking were data on instrumentation in smaller chemistry departments.

The objective of this survey study is to gather data across a broad sample of academic departments of chemistry and chemical engineering in order to obtain an indication of the status of the current inventory of instruments, and the magnitude of the needs for instruments at these departments.

B. Survey Methodology

In the spring of 1982, the ACS Committee on Science sent a preliminary survey questionnaire to 15 chemistry departments and five chemical engineering departments. The schools surveyed included private and public universities and small colleges.

The survey questionnaire was modified based upon experience with the preliminary survey and comments received from responding departments. This revised questionnaire sought information on the age of the existing inventory, the funding source, condition and use of the inventory, and critical instrument needs for the next two to five years. It was sent (with a cover letter assuring that individual reponses will remain confidential) to the following sample of academic departments:

- chemistry departments at 50 major schools
- chemistry departments at 112 smaller schools
- chemical engineering departments at 25 major schools

A systematic sample was selected of one half of the 100 schools with largest R&D expenditures in chemistry, according to National Science Foundation statistics[3]. A systematic sample of 112 of the remaining (that is, not in the top 100) chemistry departments was taken from a mailing list prepared by the ACS Department of Professional Training. This list was sorted by ZIP Code, giving a sample which represented nearly all geographic regions within the U.S. The same NSF publication also lists U.S. colleges and universities ranked by 1979 R&D expenditures in engineering (not chemical engineering). A systematic sample of 25 of those schools with chemical engineering departments was selected.

The questionnaire and cover letter can be found in the Appendix.

II. DEPARTMENT RESPONSE

A. Response Rate

The response rate in both categories of chemistry departments was around 60%. The response rate for chemical engineering departments was slightly lower at 52%. The following table summarizes the data on department response rates:

TABLE 1. DEPARTMENT RESPONSE RATES

	Responses	Number Surveyed	Total* Number	Response Rate	Percentage of Total
Large Schools	32	50	100	64%	32%
Small Schools	71	112	470	63%	15%
Chemical Engineering	13	25	130	52%	10%

*Refers to total number of ACS-accredited departments in each category

The chemistry and chemical engineering departments responding to the survey are profiled in Table A of the Appendix. The table shows the types of degrees awarded by the departments, and the numbers of faculty, postdoctoral fellows, graduate and undergraduate students. The "small institution" category includes more than four-year colleges. Of the 71 small institutions responding 14 have Ph.D. programs and 13 have M.S. programs as the highest degree programs offered. Similarly, 6 of the small institutions have between 10 and 20 thousand students enrolled and 2 have more than 20,000. For the purpose of this survey, a school is considered "small" when it is not in the top 100 in total R&D expenditures in chemistry, according to figures published by the National Science Foundation.[4]

B. Quality and Completeness of Data

A few respondents did not complete the questionnaire sections on instrument inventory and needs. They indicated that the task of filling out these sections was too burdensome and time-consuming. However, most respondents did provide data on instruments in the inventory and on instrument needs. Some respondents also noted that their returned questionnaires listed only the major instruments, and did not reflect the total scope of their inventories. It is reasonable to assume that, overall, the data obtained understates the instrument inventory in departments of chemistry and chemical engineering. Some departments also noted that they did not list instruments to which their investigators had access outside the departments, such as instruments in interdisciplinary institutes.

For the units of instrumentation in the inventory that were listed by respondents, there was almost no missing data on condition, funding source, use, operation, year of acquisition, and initial cost. However, a significant number of respondents listed multiple sources of funding for individual instruments. As no code numbers were provided for multiple sources of funding in the list accompanying the questionnaire, tabulation and data handling by computer could not be done without a great amount of additional work.

A few respondents provided data on their instrument inventory, but did not answer the section of the questionnaire dealing with instrument needs. Others indicated that the needs described in their returned questionnaires may change with faculty turnover.

Since only 13 chemical engineering departments responded, 10% of the total number of departments accredited by the American Institute of Chemical Engineers, reliable statistical analysis of the data on chemical engineering departments was not possible and does not form part of this report.

III. INSTRUMENT INVENTORY

Survey respondents were asked to describe their department's instruments, excluding instruments "that would cost less than $5,000 at today's prices," and excluding computers and computer peripherals. Table B in the Appendix gives a profile of each type of department, in terms of inventory value, annual maintenance costs, and number of equipment personnel employed.

For instance, 25% of the responding chemistry departments at major institutions have instrument inventories of $1.660 million or less; 25% have inventories worth $5.8 million; and the median inventory for such departments is $3.3 million.

Tables C and D in the Appendix give a breakdown of the inventory reported by instrument type, condition, year of purchase, use, and department type. A glossary of instrumentation methods is included in the Appendix.

A. Mean Age for All Instruments

The mean age of all instruments was computed from the data on year of purchase in Table C. For chemistry departments in smaller schools, the mean age of all instruments was 8.9 years, compared to 8.2 years at chemistry departments in major schools.

B. Instrument Types

In the overall sample of all three types of departments, the seven instrument types reported most frequently in both the inventory and the list of needed instruments were:

1. Ultraviolet-Visible Spectrophotometer (UV-VIS)
2. Gas Chromatograph (GC)
3. Nuclear Magnetic Resonance (NMR)
4. Infrared Spectrophotometer (IR)
5. Mass Spectrometer (MS)
6. Liquid Chromatography (LC)
7. Atomic Absorption (AA)

For the purpose of this report, the above seven instruments will be referred to as "Seven Common Instruments." The other instruments for which code numbers were provided in the instructions accompanying the survey questionnaire will be identified as "Less Common Instruments." Finally, all instruments not assigned code numbers in the instructions will be referred to as "Other Instruments." Graph 1 shows for each type of department the distribution of the inventory between these three broad categories of instruments.

- The seven common instruments constitute 54.6% of the inventory of chemistry departments in major schools. As would be expected, these instruments make up a greater percentage (72.7%) of the inventory at smaller chemistry departments.

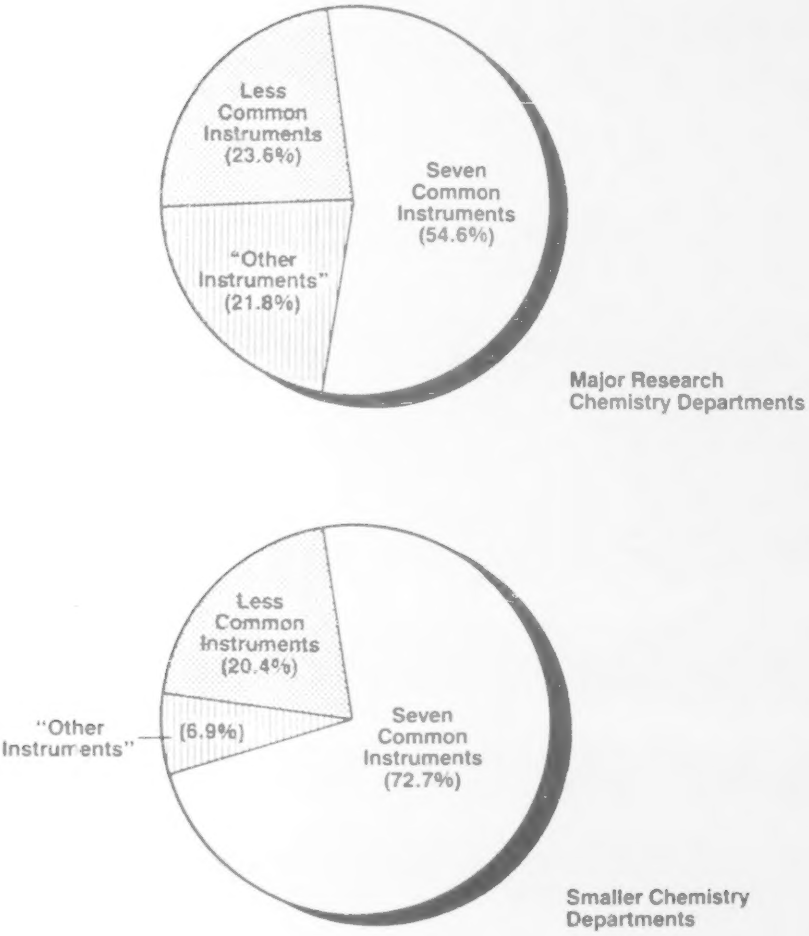
- A greater percentage (21.8%) of the inventory of major research chemistry departments falls in the category of "Other Instruments," compared to the percentage (6.9%) reported by smaller chemistry departments. This difference reflects the diversity of faculty research interests in the larger schools. For example, the "Other Instruments" category in major schools includes lasers and surface science instruments which are presently found less frequently in chemistry departments than the basic, key instruments.

Graph 2 shows the number of units of each of the seven common instruments, as a percentage of the total units of all instruments reported in the inventory.

- UV-VIS, IR, GC, and AA instruments constitute a much greater percentage of the total inventory in the smaller chemistry departments, compared to chemistry departments at major institutions. This difference reflects the lower costs of these instruments and the perception that they constitute the minimum inventory needed for instruction purposes.

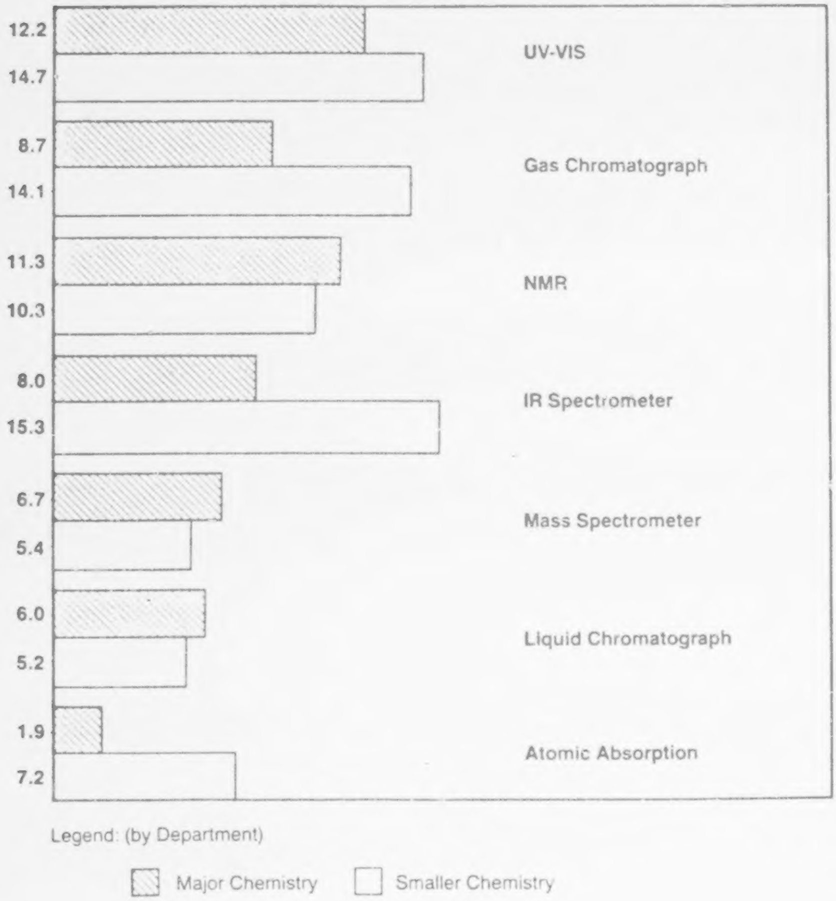
Graph 1

Instrument Inventory (By Types)



Graph 2

Seven Common Instruments in Inventory
(as % of total inventory)



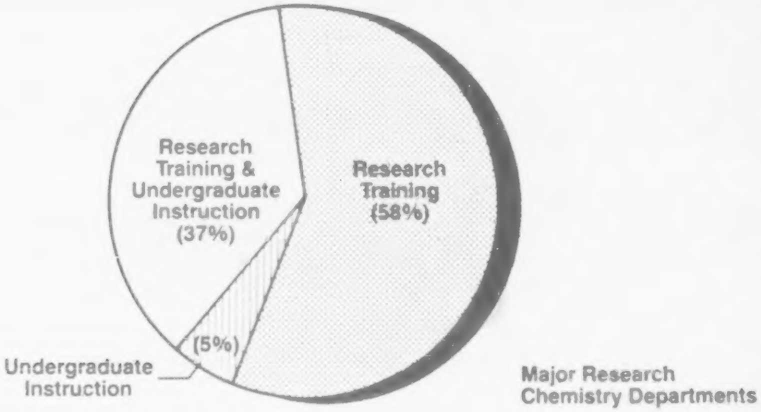
C. Instrument Use

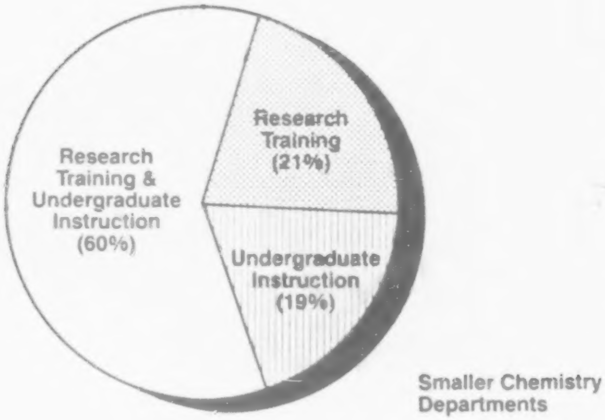
For purposes of brevity three categories of instrument use were designated. By "instruction only" we mean instrumentation in structured undergraduate laboratory instruction. By "research only" we mean training primarily of graduate and postgraduate students although undergraduate students also participate in research training on a selected basis. By "research and instruction" we mean a combination of the above uses. The percentages in Graph 3 relate instrument units in a particular category to all units in the inventory.

- The percentage of the inventory used primarily for undergraduate instruction in smaller chemistry departments (19%) is significantly greater than the corresponding percentage (5%) at major research chemistry departments.
- Conversely, it is not surprising that close to three times as much of the instrumentation inventory at major chemistry departments is used in research training than the amount used in primarily undergraduate departments.

Graph 3

Instrument Inventory (By Use)



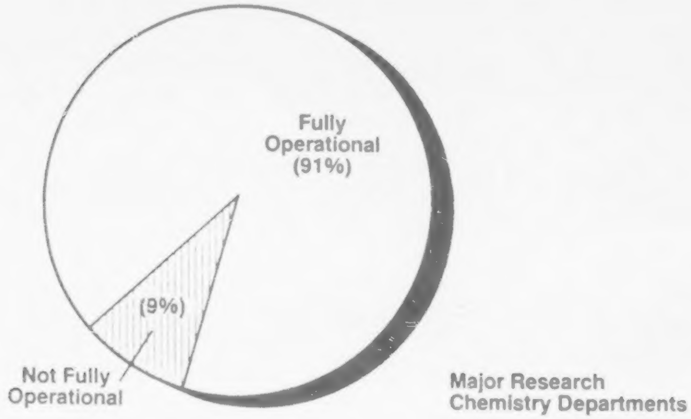


D. Instrument Condition

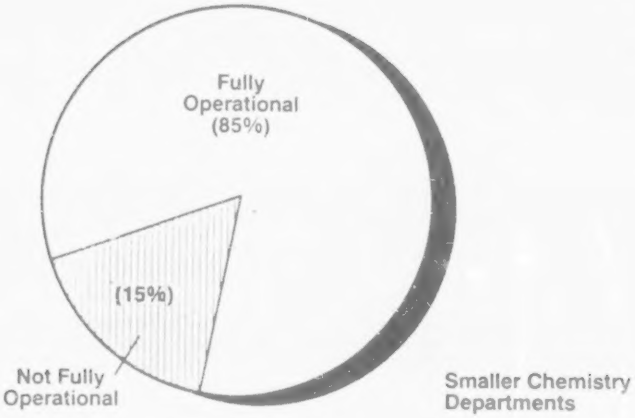
Graph 4 shows the condition of instrumentation currently on-hand at the three types of institutions surveyed.

Graph 4

Instrument Inventory (Condition)



Major Research Chemistry Departments



Smaller Chemistry Departments

E. Assessment of Instrument Inventory

The mean age for all instrumentation in major research departments responding to the survey was 8.2 years. Instruments from smaller institutions were, on average, even older: 8.9 years for all instruments and over 10 years for the seven common instruments. By today's standards, the instrumentation inventory in departments of chemistry and chemical engineering in the U.S. is too old. A widely held estimate for the optimum useful life of a typical research instrument is about 7 or 8 years. In the experience of laboratory managers, retaining an instrument much beyond that life is unwise. First, maintenance problems are likely to grow rapidly after that period. Second, the instrument probably has become technologically obsolete.

1. Maintenance of Aging Instrumentation

The instrument maintenance budgets reported by responding departments were low in comparison to what is believed to be adequate maintenance expenditures, particularly in view of the age of the inventory. Annual maintenance expenditures at major chemistry departments in this survey were around 3% of the total value of the instrument inventory. The number of instrument maintenance personnel (Table B) also appears to be inadequate, especially in the smaller chemistry departments where these specialists are all but nonexistent.

Instrument service problems are evident at the smaller departments. For example, while 93% of the GCs in major departments are in good condition, this figure is only 85% at the smaller schools.

2. Technological Obsolescence

Maintaining instruments so that they remain in good working order is only one problem posed by an aging instrument inventory. Another question to be answered is: Does this aging inventory of instruments translate to obsolescence in the inventory? For chemical instrumentation the answer is "Definitely, Yes." The technology of chemical instrumentation has evolved rapidly in the last decade. Our concern is that decade-old instrumentation simply does not reflect the state-of-the-art.

Microprocessors. There are many causes for the rapid obsolescence rate in chemical instrumentation. In the last decade, spectrometers and chromatographs, the cornerstones of chemical instrumentation, have had incorporated in them the state-of-the-art electronics to a high degree, using all the new developments in this field. A series of rapid advances in microprocessor technology has made it possible for many scientists to reap the benefits provided by inexpensive, distributed intelligence in instrument control and in the acquisition, reduction (sorting out), and display of data. Much of this progress has been exhibited in a new breed of commercial instruments that incorporates embedded microcomputer systems. The microcomputer was first used to manipulate controls and perform mathematical treatments on data. More recently it has been used to perform certain logic functions such as comparing generated data to information stored in the memory of the equipment. In many cases, analysis time is reduced by 10- to 100-fold. An effect of the instrument-computer marriage is that the changes in electronics technology have caused obsolescence in the instrument system. Fourier transform (FT) data reduction is a specific sample.

Fourier transform (FT) data reduction methods have revolutionized IR and NMR spectroscopy by making it possible to obtain spectra of very weak signals, such as IR spectra of planets and C-13 NMR spectra of very large organic molecules. The advent of Fourier transform data reduction in NMR also dramatically reduced the time required for obtaining a C-13 NMR spectra from several hours to a few minutes. FT-NMR spectrometers are also capable of a number of sophisticated multiple-pulse techniques that have opened up a wide range of new applications. A very recent advance in FT-NMR was the introduction of a FT-NMR spectrometer specifically designed for solid samples which would allow investigators to analyze such materials as coal, oil shale, catalysts, and biological specimens in their natural states. Also recently, a Fourier transform IR spectrometer was introduced which also had spectral search capability and contained a large data base of reference FT-IR spectra.

The advent of microprocessors has facilitated a new phenomenon: the interfacing of two instruments which are automated together as a single integrated unit via a hardware interface. The function of the hardware interface is to reconcile the often extremely contradictory output limitations of one instrument and input limitations of the other instrument. Interfacing a GC to a MS is now a very widespread practice. There is a unique compatibility between the two instruments: the GC separates the components of a mixture and delivers them one by one to the MS for spectral identification. This permits the identification of compounds present in quantities as low as 10^{-6} to 10^{-10} grams. Analyses that were previously impossible or lengthy and inaccurate now take half a day or less.

New Technologies. The last decade has seen the introduction of totally new technologies in chemical instrumentation. An example is supercritical fluid chromatography. Supercritical fluids are very dense gases kept above their critical temperatures (the temperature at which a gas can no longer be compressed to a liquid). Supercritical fluids dissolve compounds that cannot be separated by GC because they are nonvolatile. Their low viscosities and high solvent power also cause compounds to migrate 100 times faster in a chromatography column than liquids do, resulting in a higher resolution (better separation) between compounds. Thus, supercritical fluid chromatography is a separation technique which can be applied to heat-sensitive nonvolatile compounds, with 5 to 10 times the speed and 5 times the resolving power of high performance liquid chromatography (HPLC).

The inductively coupled plasma (ICP) mass spectrometer made its commercial debut recently. It combines the high ionization efficiency of the inductively coupled plasma torch with the sensitivity and selectivity of MS detection. The mass spectra obtained by this method are quite simple and free from the matrix interferences that often complicate traditional mass spectra.

There are now a host of new non-destructive techniques for the study of surfaces, which are going to play an important role in surface analysis and molecular design of catalytic phenomena.

Evolutionary Improvements. In addition to the incorporation of microprocessors, and the introduction of new technologies, there have been marked evolutionary improvements in the last decade in existing technologies. In mass spectrometry (MS), for instance, new sample-handling systems have been developed to extend the range of compounds that can be studied, and new ion sources have made it possible to study larger molecules than ever before, including many compounds of biological interest. Lasers and laser-based instruments will also figure prominently in future developments. The tunable dye laser holds the promise of expanding sensitivity, resolution, and selectivity in spectroscopy. Plotting spectra in the derivative mode or the wavelength modulation mode--all accomplished through electronic hardware--have increased the detectability of minor spectral features. Three dimensional plotting (of excitation wavelength, emission wavelength and emission intensity) is an innovation in fluoroescence spectroscopy which is especially useful for "fingerprinting" crude oils and other complex mixtures. Many areas of scientific research and chemical technology have been aided significantly by the availability of capillary GC and GC-MS which are particularly useful for the resolution of isomers, the analysis of complex mixtures and trace organic compounds, and chromatographic "fingerprinting" of samples.

IV. INSTRUMENT NEEDS

In addition to a profile of the inventory, an assessment of the needs for new instrumentation at responding institutions also was made. Each department was asked to list instruments that were critically needed. A summary of the responses is shown in Table E of the Appendix.

A. Instrument Types

Graph 5 shows for each type of department the distribution of the instrument needs between the three broad categories of instruments.

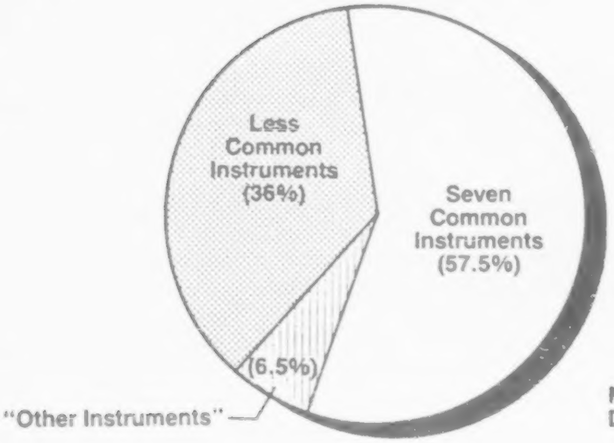
- The seven common instruments constitute 57.5% of the needs in chemistry departments at major schools. As would be expected, these instruments make up a greater percentage (73%) of the needs at smaller chemistry departments. These two percentages are very close to the percentages represented by the seven common instruments in the inventory.

Graph 6 shows the number of units of each of the seven common instruments, as a percentage of the total units of instrumentation needed.

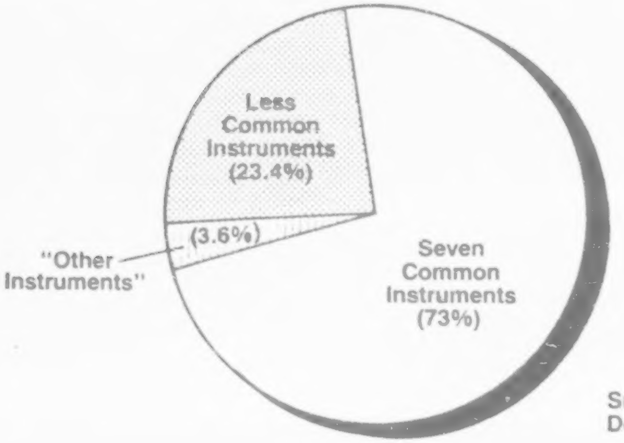
- NMR instruments dominate the needs list in both types of chemistry departments.

Graph 5

Instrument Needs (By Types)



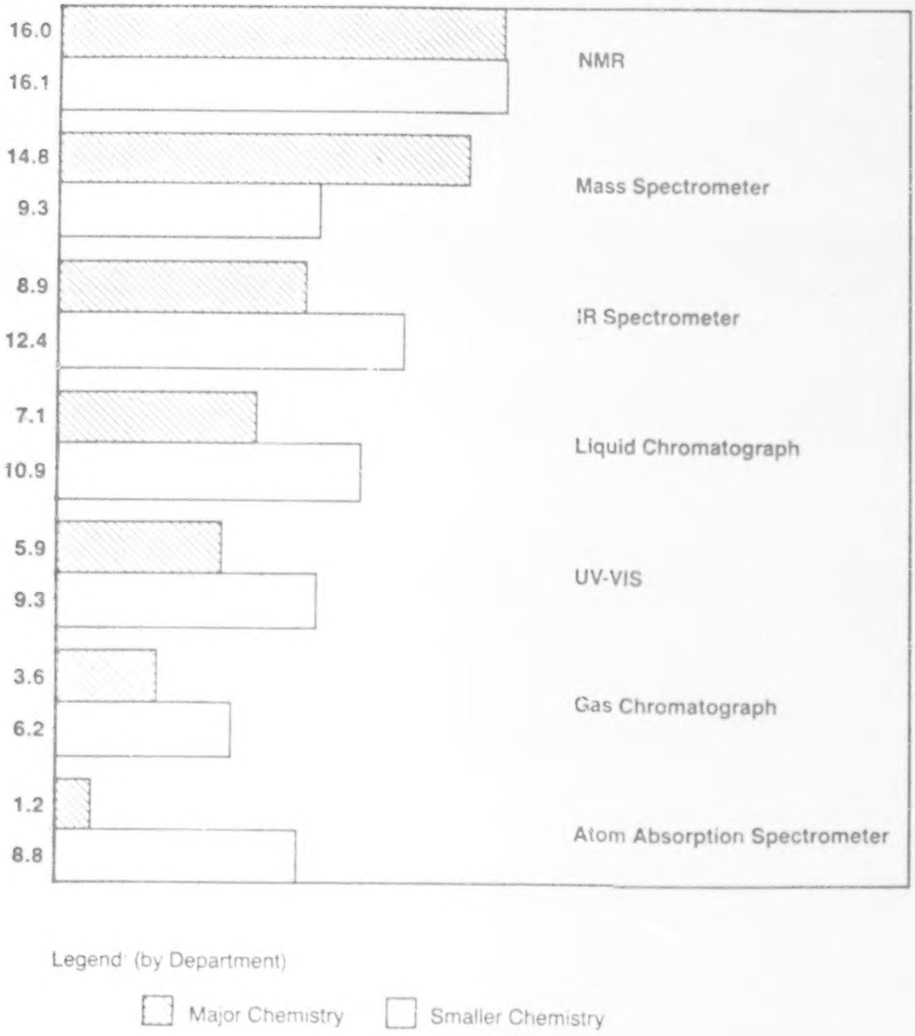
Major Chemistry Departments



Smaller Chemistry Departments

Graph 6

Seven Common Instruments Needed
(as % of total needs)



B. Anticipated Instrument Use

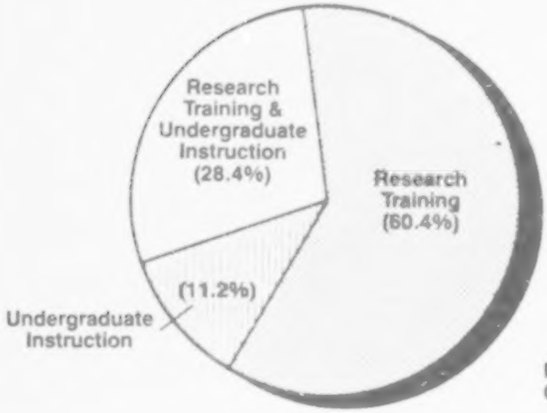
Graph 7 shows the anticipated use of instruments needed by the three types of departments.

- Major chemistry departments apparently plan to use newly acquired instruments in roughly the same mix as they use currently on-hand equipment. Not surprisingly, they have indicated a need primarily for research training instruments, with only 11% of requests for instruments for undergraduate instruction.

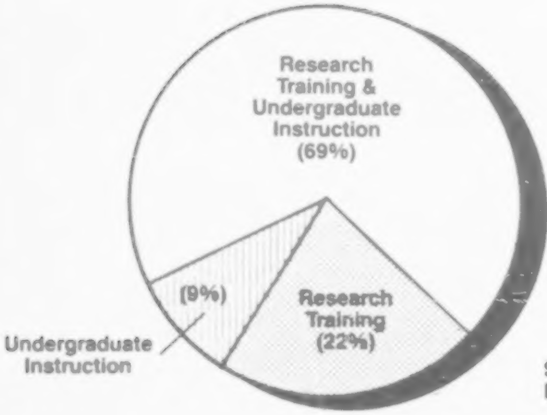
- In contrast, smaller chemistry departments have the greatest need for instruments that can be used both in research training and undergraduate instruction. At these schools, 69% of new instrumentation will be devoted to these combined needs. Their need for instruments for research training is considerably less than for the major chemistry departments (22% vs. 60%).
- The percentage of newly acquired instruments planned for undergraduate instruction is essentially the same at smaller chemistry departments (9%) and at larger chemistry departments (11%). This situation is quite different from the use of existing inventory where a much greater percentage is dedicated to undergraduate instruction at smaller chemistry departments than at major chemistry departments (19% vs. 5%).

Graph 7

Instrument Needs (By Anticipated Use)



Major Research
Chemistry Departments



Smaller Chemistry
Departments

C. Assessment of Instrument Needs

A very important piece of information which is missing so far is the estimated cost of meeting the instrumentation needs of all departments of chemistry and chemical engineering in the U.S. The results of this survey provide one method for arriving at that overall cost figure.

Most of the departments which responded to the survey provided cost estimates for the specific instruments on their needs lists. In those few instances where these data were missing, an estimated cost was selected by the preparers of this report, taking into account the type of instrument involved and its anticipated use.

1. Major Chemistry Departments

Of the 32 chemistry departments at major institutions which responded to the survey, 28 provided estimates of the purchase price of each unit of needed instrumentation. The total of the cost estimates reported by the 28 schools was $23,292,460.

Extrapolating to 100 departments of chemistry gives us a cost estimate of approximately $83.2 million for meeting the instrumentation needs of the top 100 chemistry departments at major institutions.

2. Smaller Chemistry Departments

Sixty six chemistry departments at small schools provided cost estimates for their instrumentation needs, adding up to a total of $9,215,500. Extrapolating from this figure to the 470 ACS-accredited small schools gives a cost estimate of $65,625,530 (or $65.6 million) for meeting their instrumentation needs.

V. CONCLUSIONS AND RECOMMENDATIONS

With rapid changes in technology taking place, instruments can become quickly outdated. A continuing program to update academic instrumentation is needed if we are to provide academic researchers with tools that are sophisticated enough to deal with today's complex scientific challenges, and provide an educational experience that is relevant to employment in industry or pursuit of breakthrough research.

To mount an attack on instrument obsolescence in academia, substantial expenditures will be needed. Where will resources of this magnitude emerge? Both private and governmental (state and federal) sources must be tapped if the problem of instrument obsolescence in academic departments is to be effectively addressed.

- The Federal Government, which is a major source of funds for purchase of instrumentation of chemistry research, should continue to support instrument purchases, not only for use in research training but also for undergraduate instruction.
- Additional mechanisms for financing the purchase of instrumentation should be explored further by academic institutions.
- Grants in support of research projects and instrumentation purchase should make allowance for the costs of maintaining instrumentation.

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[1] Association of American Universities, The Scientific Instrumentation Needs of Research Universities, Report to NSF, 1980

[2] Westat Inc., Indicators of Scientific Research Instrumentation in Academic Institutions: A Feasibility Study, Report to NSF, 1982

[3] National Science Foundation, Academic Science: R&D Funds, FY 1979, 1980

[4] National Science Foundation, Academic Science: R&D Funds, FY 1979, 1980

STATEMENT OF ROGER NICHOLS, M.D., THE MUSEUM OF SCIENCE, BOSTON, ON BEHALF OF THE AMERICAN ASSOCIATION OF MUSEUMS

Senator GARN. Our next witness is Dr. Michael S. Pallack, executive officer, American Psychological Association.

Is Dr. Roger Nichols here?

Dr. Nichols, would you please begin?

Dr. NICHOLS. Thank you, Senator Garn. I am pleased to have this opportunity to testify on behalf of the American Association of Museums and the Association of Science and Technology Centers. Speaking for the science and technology centers, we would like to congratulate you on your recent adventure; all our hearts went with you on that magnificent trip you just took.

Senator GARN. Well, it was a remarkable trip. I said it many times privately—I suppose I should say it here for the record. When we got back and we were in Houston and our first public appearance, each member of the crew was asked to speak for a couple of minutes and respond to questions.

The best summary of our trip that I could possibly give you and everyone else is what Dave Griggs, one of the men who went outside on the extravehicular activity, his speech was, by far, the best of all. Two words. He got up, stood before the mike and said, "Gravity sucks." [Laughter].

And sat down. He got a standing ovation from his crew, and he is absolutely correct.

Dr. NICHOLS. Senator Garn, I am here today to cut against the grain of some of the testimony that many of the scientists have had with respect to the NSF, intra-NSF appropriations. I have been for 32 years an appointee of Harvard, and for the last 12, I have been professor or chairman of the department of microbiology, Harvard School of Public Health. I am a physician. I left Harvard recently to join the Boston Museum of Science as director because I am convinced that the problems in education of this country will not be solved at the university level if they are not solved at the outset at our primary and secondary school level.

We have a very real educational problem at the precollegiate level, and I am here to ask Congress to nudge the NSF into providing additional funds within its own budget for precollegiate education in math and science.

The previous witness here testified to the fact that there is precious little funds within the NSF for precollegiate education. In the last 3 years, there has been a total of $369 million out of the multibillion dollar budget of the NSF assigned to precollegiate education. Of that, however, the NSF spent only about $80 million. So they spent only half of what they had available, and this was not because of lack of good proposals or lack of staff inside the NSF. I sit on those panels and I know.

The problem, it seems to me, is a mindset within the NSF which in my role as a scientist at Harvard applauded. At that point, as a research scientist, I was looking for funds for postgraduate research. The NSF mindset is to pay attention to university and doctoral and postdoctoral education and research. There is little tendency to pay attention to precollegiate education; and yet MIT, as an example of one of the prestigious institutions in our country, began in 1975 to supply remedial education to its incoming freshmen. MIT assumed this to be a post-Vietnam phenomenon which in a few years could be abandoned. MIT has had to increase the resources committed to remedial education every year since that time, and now nearly 50 percent of incoming students to MIT require remedial education, not just in math and science, but in writing, reading skills, comprehension skills, et cetera.

I suggest that there is a real problem here. I thought that our bright students would win through and go to the top. The cream would always rise—all of those cliches. That is not the case.

If we take children with IQ above 140, 20 percent drop out before they finish high school, and never finish high school. The dropout rate for gifted and talented students across the Nation is the same as it is for average students.

I thought kids decided in high school whether they are interested in science or not. They do not. That decision is made by the time they are in the eight grade or before. By that time, only 20 percent of our kids are interested in science, and most of them are white males. We have lost our girls for the most part; we have lost our minority students.

I applaud all the efforts of the school systems and everybody is gearing up and saying we have to do something about the education within our school systems, but I also am somewhat pessimistic about it, if you want to know the truth, because in the year 2000, present estimates are of the teachers we have in the year 2000, 70 percent of them we have with us now.

That cadre of teachers has been going down steadily in terms of SAT scores, of their interest in science and math. They are simply not able to teach science and math now at the elementary level, or the middle school level.

I commissioned a study in Massachusetts, which is not a bad State educationally, to ask of elementary teachers who are teaching science how many have had a course at the university level in the subject that they are teaching, and my staff laughed at me and said you are going to be surprised what you find out.

I was surprised. On average on a random survey, Massachusetts teachers have had zero courses at the university level in the science they are teaching. If they are teaching a course in earth sciences, they have had no courses in geology or geography. What they had was a course on how to teach earth sciences which is a lot different than a substantive course in the subject matter itself.

It is no wonder our kids are turned off. Where are they going to get turned on?

My hunch is they are going to get turned on in the informal educational institutions and those are museums of science; they are science centers, acquaria, zoos, arboreta—this is the area where science is fun, where they get a kick out of it, where they can come and be revitalized in terms of science. I have had so many men come up to me since I have been director of the Museum of Science and say my life is changed by the Boston Museum of Science or the Los Angeles Museum, the Chicago Museum of Science and Industry, et cetera.

More than that, we are training this year at the Boston Museum of Science 1,100 teachers in science teaching skills, informal courses. We are not unique. Many, many other institutions do the same thing.

As far as the girls are concerned, we are bringing in this year thousands of girls from all over New England to unroll their sleeping bags on the floor, to sleep on the floor of the museum, stay there over the weekend with their counsellors, and they get an experience that they cannot get in the school system.

We are taking science kits out into the communities and giving them to the teachers and teaching the teachers how to use them.

I could go on with a whole series of activities that are present. You should know that we have a number of science museums which are devoted to space. They are the Alabama Space and Rocket Center, National Air and Space Museum, Washington, DC, so on. All of these are telling our kids there is an opportunity. I am requesting that you put some pressure through Congress on the NSF to get them to allocate the funds that we do have and to stop this business of postponing funds which they have allocated to them in the area of precollegiate education.

We are within such a small part of the NSF budget; we are almost in the rounding area of that budget. Out of a budget of billions, we only have a few million, and yet the NSF mindset is not one that is going to pay much attention to precollegiate education unless you as legislators give them a nudge in the right direction. I urge you to do so.

Senator GARN. Thanks, Doctor. It would seem to me so entirely basic that you must start that scientific education prior to college. If you take the average high school students who decide that they want to be scientists in college, you have almost lost the ballgame there. Certainly, you have almost two strikes against you. That is why I was saying earlier, I don't know, I don't put all the blame totally on the educational system. Parents and students are at fault, too, in wanting to take so-called easier courses to get higher grade points and all of that sort of thing and not study and work as hard and take the short term.

So I think there is enough guilt for everybody to go around, but I could not agree with your testimony more. We have got to stimulate the elementary, middle, and high school areas, if you want to have success.

So those who testify so much in favor of the college level, I understand what they are saying, but they cannot be that shortsighted and not realize it has to start a long time before that freshman year in college.

Dr. Nichols. Thank you, sir.

Senator GARN. Thank you.

STATEMENT OF MICHAEL S. PALLACK, EXECUTIVE OFFICER, AMERICAN PSYCHOLOGICAL ASSOCIATION

Senator GARN. Is Michael Pallack here?

Mr. PALLACK. Yes.

Senator GARN. Did I pronounce that correctly, or did I butcher it?

Mr. PALLACK. No, you did just fine, Senator.

Senator GARN. Please proceed.

Mr. PALLACK. I am Dr. Michael Pallack, executive officer of the American Psychological Association. I believe this is the third time in the last 3 years I had the privilege of providing testimony before this subcommittee. I am here today to testify again on behalf of our 76,000 members, many of whom conduct NSF-supported research in every State of this Nation.

To begin with, I want to assure you that APA appreciates that this subcommittee, along with the rest of Congress, is having to carefully scrutinize this new budget as never before. Insuring support for essential Federal programs, while at the same time taking meaningful action to restrain spending, is a difficult but critical balance that you are seeking. We certainly support your efforts in achieving that balance.

In setting that balance, this subcommittee sends out an important signal regarding the value of basic scientific research to the well-being of society. This subcommittee's sensitivity and strong support for the research funded by NSF in the past has been particularly important for research in behavior and social sciences and underscores the continued contribution of these sciences to society in general.

Since in recent years the Congress has not passed an NSF authorization bill, this committee has played a very special and very critical role in helping to set priorities at NSF. It seems very likely again this year that an NSF authorization will not be signed into law and, therefore, members of this committee will be asked to continue your very critical policy-setting direction for NSF.

That is why we especially appreciate the opportunity to be with you this afternoon and to endorse strongly the President's fiscal year 1986 NSF budget request. We commend the President for proposing to increase support for NSF by 4.4 percent in a time of austerity. The proposed 8-percent increase for the biological behavior and social sciences director and within that director, increases for the behavior and neuro sciences program, I believe, show an increased awareness by the administration of the significant contributions made by behavior and social science.

The Behavior and Neuro Sciences Division, which uses approximately 40 percent of its budget to fund social and behavior science research, is slated to receive a 6-percent increase over fiscal year 1985 levels.

Senator, because of the basic nature of most NSF support, because of behavior scientists conducting research on the issues we deal with, NSF is often the sole means of basic research support for these individuals. It is for that reason we hope the committee will note with approval NSF's continuing process in restoring support. However, even with the addition of $5 million to the biological behavior and social sciences directorate recommended by this committee in fiscal year 1985, support for these programs in real dollars still remains below fiscal year 1980 levels.

More importantly, the proportionate share of the NSF research budget allocated to behavior and social science research has fallen to 5.9 percent in 1980 to about 3.5 percent in fiscal year 1985. Consequently, we hope you will urge NSF to maintain a proportionate level of support for behavior and science research programs at the level proposed.

As you know, behavior and social science programs in the past years have not been treated as equitably in budget proposals. I believe that trend has turned around in the past 2 years, due in large part to congressional support for quality research in these important areas of science. Indeed, this subcommittee played a major role in creating the climate for change. Indeed, this panel last year added $5 million to the BSS Director. We thank you for that action. We look forward to your continued support. We look forward to providing whatever assistance we can.

In addition, in the technology program at NSF, as the pace of scientific advance accelerates, it is imperative we have a mechanism by which to study the moral and ethical problems often raised by new technology and processes. I believe in the fiscal year 1985 budget, the NSF EVIST Program is funded at about $1 million to support these studies. Authorization committees in both the Senate and House rejected the administration's request for the elimination of the EVIST Program in fiscal year 1986. We concur with that position and would urge the subcommittee to support EVIST at the levels it received this year. If EVIST is to continue its high-quality work, then the Programs Advisory Committee should be maintained to provide strong central supervision to provide strong program adherence. We believe the EVIST Program as currently constituted does deserve continued support.

Finally, and very briefly because I know you have a tight time schedule, I would like to say a few words about science and engineering education at NSF. We strongly supported science education at NAS, as you yourself have. It is within the science and engineering education directorate that two of the Foundation's primary functions—the support for basic research and the development of future scientists—come together in sharpest focus. We share concerns expressed by Congress and this subcommittee many times that improvement is needed in our Nation's science education activity. Psychologists, and others involved in education-related research, have made significant strides in the process of learning, of teaching, and they are applying their findings to develop methods to improve science education in the Nation's classrooms.

We are pleased additional funds for teaching and learning research in last year's budget have again been targeted. We strongly support this critical research and again emphasize its importance, including education in America's schools.

Senator, we have appreciated your personal efforts in support and determination on these issues in the past and, again, we are prepared to do all we can in support of your future efforts. Thus, the related issues of concerns to APA and others has been NSF deferral of funds available for research in science education.

As I understand it, ostensibly due to difficulties in establishing science and education directorate at NSF after it was nearly abolished, I guess, in 1981, the administration seems to be deferring $31.4 million of the $87 million appropriated for fiscal year 1985 into fiscal year 1986. I believe this is the third consective year in which NSF has not been able to expend a significant portion of the funds appropriated for science education activities. Thus, we would hope the subcommittee reiterates its strong support for the full funding and full utilization of these activities at NSF.

Again, it is a pleasure to appear before this subcommittee and I would be pleased to answer any questions, Senator.

Senator GARN. Thank you, Doctor. I have no questions of you at this time. I do appreicate your willingness to testify again this year.

Mr. PALLACK. Many thanks.

STATEMENT OF PHIN COHEN, BROOKLINE, MA

Senator GARN. Is Mr. Cohen here?

Mr. Cohen, please proceed.

Mr. COHEN. Thank you. Senator Garn, ladies and gentlemen, I ask respectfully that you read the 28 double spaced pages of my written testimony. In the 5 minutes alloted to me now, the best I can do is give an outline presentation, highlighting some of the important events of my 10-year investigation into the serious problem of grants mismanagement.

My name is Phin Cohen. I am a former principal investigator who bears witness to a mockery of acedemic freedom. My hard-won Federal grants were plundered by the Harvard University School of Public Health and when I complained about this, I was given a terminal appointment.

One, I discovered that Federal grants, which I had won as a principal investigator, were being mismanaged by the School of Public Health, Department of Nutrition.

Two, the more questions I asked without getting satisfactory answers, the more I became convinced that the mismanagement went beyond my grants.

Three, I asked Harvard to do a complete audit of all grants in the department of nutrition. This was not done.

Four, after making the request for an audit, I was given a terminal appointment and my mental stability was questioned by those who mismanaged the money.

Five, I reported the problem to Federal authorities in December 1975. I said at the time I thought the problem was not confined to my grants but was, in fact, widespread.

Six, an audit was done by Federal auditors which confirmed my allegations with respect to mismanagement of Federal grants in the department of nutrition and resulted in the return of $132,000 to the Federal Government.

Seven, the Director of Federal Audit Group on the basis of his findings agreed that the problem had the earmarks of being widespread and recommended to the then HEW that a full-scale audit be done not only of the School of Public Health but also other schools in Harvard which receive Federal grants.

Eight, in April 1977, with no sign that HEW was doing or planning the recommended audit, I filed a complaint in court asking for an audit as well as compensatory restoration of my career. In my written testimony, paragraphs 44 and 45 of my complaint are quoted. Please read them.

I predicted that a general audit would find direct and indirect costs had been misused to the tune of millions of dollars. That was a bold and unprecedented prediction.

Nine, now 8 years later, the audit is mostly settled. My predictions of 1977 made at a time when my lawyer had been told I was mentally unstable for making such allegations have come true in ways and on a scale which the Federal auditors previously had not been able to document. So far, Harvard has paid back $10 million to the Federal Government. This is, by far, the largest payback by a university to the Federal Government as the result of an audit.

Ten, during the audit, I—not the auditors—obtained evidence in writing that at the Harvard School of Public Health, the assistant dean for finances knew that Federal moneys were being covertly diverted for unauthorized purposes. Please refer to my written testimony for direct quotes from internal memoranda authored by the assistant dean for finances.

The misuse of money was thus deliberate and willful.

Eleven, I have also analyzed the audits of 100 institutions throughout the country. The variety and scale of the misuse convinced me that the problem is not confined at Harvard but is national in scope and very serious in its implications.

There are two important lessons to be learned from this story. First, university people know what they are doing when they mismanage money.

Second, anyone who challenges the misuse of Federal moneys by university people, even if it is the person, the principal investigator, such as I, who raised the money in the first place, may be subjected to retaliatory expulsion for expression of free speech and the exercise of academic freedom. These are the same university people who speak so eloquently about free speech and academic freedom when it suits their purposes in the social and political arenas.

I suggest in closing, respectfully, that you attach a rider to an appropriations bill which states in effect: "Any PI shall not be punished"—PI being principal investigator—"shall not be punished, expelled, or sanctioned in any way for raising questions regarding the management of a Federal grant or contract on which he is the principal investigator." Such a rider would strike a blow for academic freedom and fiscal accountability at the same time.

The tripartite relationship among the Federal Government, the PI's and the universities needs strengthening. None of these three partners can do without the other. The principal investigator, by far the weakest of the three, needs your protection. Principal investigators need to keep their grants to do their work. They also need Federal rights which are commensurate with their Federal responsibilities.

PREPARED STATEMENT

Senator GARN. Mr. Cohen, your entire statement will be printed in the record, as the other witnesses.

I apologize for the briefness of time, not only to you but all the other witnesses. But the number of public witnesses that desire to testify is a very large number, and we try to accommodate all of them. That is why we use the system of brief oral remarks and then place the entire statement in the record.

So I assure you, your written statement will be in the record. Thank you very much.

Mr. COHEN. Thank you.

[The statement follows:]

STATEMENT OF PHIN COHEN, BROOKLINE, MA.

My efforts led to an audit of federal grants and contracts at Harvard University. So far, the audit has revealed that Harvard misused 15 million dollars of federal funds. According to press reports, approximately 10 million dollars have been returned to Washington.

This is by far a record payback to the government from a university. To put this in perspective, in fiscal 1976, HEW audited federal grant and contract management at 100 institutions and requested that a total of 13.2 million dollars be paid back to the government. Of this 13.2 million, less than half was actually paid back. A payback of 10 million dollars from one institution, Harvard University, is, therefore, in a class by itself. The misuse and subsequent repayment of funds by Harvard deserves attention if only because of the amount and the type of institution involved. However, these are not the only important issues. The intimidation by a respected university of me as a principal investigator (PI); the intimidation of me as a faculty member who brought forth the charges which led to the audit and the subsequent payback of 10 million dollars, should arouse great concern on the part of the Subcommittee.

Let me tell you my story and let me tell you that I think what happened to me occurs more frequently than you would like to believe. The ghosts of many former and present PIs sit beside me.

My name is Phin Cohen. I am a scientist and physician. I have an AB from Duke University and MD from the University of Maryland. After internship at Duke Hospital and 2 years service in the Air Force as a flight surgeon, I had a 1-year residency at the Boston City Hospital with a Harvard appointment, after which I spent 18 of the next 21 years doing research in the Harvard Medical area, 10 years before and 8 years after a 3-year leave of absence to do research in biochemistry in Holland.

I am a member of 4 national research societies: The American Society of Biological Chemists, the American Society for Clinical Investigation, The American Society of Hematology, and the American Federation for Clinical Research.

I am also board certified in internal medicine and a Fellow of the American College of Physicians.

In my career I've been a technician, research fellow, and PI. I've done research in three environments: in a hospital, in a basic science laboratory which was removed from health science facilities, and in a laboratory in the Department of Nutrition of the Harvard School of Public Health. My research concentrated on the physiology and biochemistry of human platelets, and the use of fluoride to treat demineralizing diseases of the skeleton. My research was first rate as judged by an ad hoc committee at Harvard which unanimously recommended a promotion for me just prior to the shattering of my academic career because I took my obligation to the federal government and the taxpayer seriously.

My exposure to grants mismanagement began when, at the end of the first year on a federal grant I had been awarded as a PI, an administrative assistant to the chairman of the Department of Nutrition of the Harvard School of Public Health gave me a blank Report of Expenditures (ROE) to sign. I informed her that I did not wish to sign a blank check and wished to see a list of expenditures before signing the ROE. I was told that such information would not be provided to me, or to other PIs in the department. Not knowing what to do, I took the matter to the Assistant Dean for Finances at the Harvard School of Public Health. He told me that the problem was not new and that he could not resolve it for me. At the end of each year of my grants, more blank ROEs came along. I continued to ask for information regarding the details of expenditures from my funds. Repeatedly, these requests were denied. I returned to the Assistant Dean for Finances several times and each time was told that he could not resolve the problem for me. He also informed me that if I continued to ask questions about the management of my grants it would be unhealthy for my career. My concern rose to such a level that eventually I demanded that lists of expenditures be provided to me. When the information was finally turned over in the form of computer printouts of expenditures I saw that federal grant funds had been grossly misused by the Department of Nutrition. I saw that persons who had done no work for my projects had been paid with my grant funds, contrary to government rules and regulations. Some of those persons were known to me and worked for other laboratories. Others were not known to me. The magnitude and pathways of misuse told me that the mismanagement certainly went beyond grants awarded to me. I requested the university to audit all grants awarded to me and all PIs in the Department of Nutrition. Harvard failed to conduct such an audit.

Prior to demanding the lists of expenditures and requesting an audit of the Department of Nutrition, I had been recommended for promotion with a 5-year term. This promotion was under consideration, but when I questioned grants management practices I was given a terminal appointment. Further, my mental stability was questioned for suggesting that any mismanagement could have occurred.

Because of Harvard's failure to inquire into the extent of grants mismanagement in the Department of Nutrition and their failure to take action with respect to the grants mismanagement I found, I subsequently reported the matter to the Federal government in December, 1975. I reported that in my view the problem extended to grants management throughout Harvard.

In February and March, 1976, the Division of Management Survey and Review (DMSR), the audit group of the National Institutes of Health, conducted an audit which proved that:

1. Persons who had done no work for my grants had been paid from my grants. Some of those persons were known to me and worked for other laboratories. Others were not known to me.

2. Other employees were charged to my grants in excess of the effort they spent on the projects. A quote from an internal memorandum dated November 11, 1973 to Dean Hiatt of the Harvard School of Public Health shows one reason why the direct cost budgets of PIs are overcharged:

> "Each little duchy has its own duplicate set of super-secretary-administrators, bookkeepers, lesser secretaries, and a manner of living replete with department kitchens and a sense of homey gemutlichkeit."

3. The procedures used to allocate supply costs were inadequate.

4. PIs were not getting adequate financial information concerning their projects.

5. Time and Effort Reports and Salary Certifications had not been signed by persons having firsthand knowledge of where the employees shown on those reports were actually working.

6. The findings were not limited to my grants. Two other grants in the Department of Nutrition were also found to have been mismanaged. This was not surprising to me. By then I had interviewed several members of the Department of Nutrition and had been told that they too were in the dark regarding management of their federal awards.

7. The findings were not limited to the Department of Nutrition. Similar evidence for grants mismanagement was found in 2 other departments of the Harvard School of Public Health.

8. Persons were paid with research funds to teach courses despite the fact that this is specifically forbidden by federal regulations. That the Harvard School of Public Health knew this was against regulations but did it anyway, is confirmed in a remarkable memorandum dated 12 October, 1975 from the Assistant Dean for Finances to Dean Hiatt of the Harvard School of Public Health:

> "The teaching programs benefit from. . . *diversion of* federal funds which redounds to the benefit of School of Public Health Financial results. A certain portion of the salaries and fringe benefits of faculty supported by federal research funds is in fact *diverted* into the teaching programs. This *ploy* has double dividends. It not only enriches the catalog offerings available to tuition-paying students (i.e. unrestricted income) but it also tends to *overstate the size of the federal indirect cost pool*. . . ."
>
> "The point of this extended discussion of the probable origins of the School's operating surpluses is to underline the fragile and transitory nature of the many factors involved . . . . The Harvard School of Public Health will be unable continuously to *tap the till of overallocated research costs*. Should federal frank support of teaching stumble and *covert* support *diverted* from research faculty dwindle, unrestricted costs for educational programs could suddenly multiply. . . ."
>
> (The emphasis supplied in the above two paragraphs is mine.)

9. The auditors quantified their findings *only* in the Department of Nutrition and included *only* 5 grants of the more

than 20 grants then active in that department. Moreover, the audit did not quantify all cost categories or all years of those 5 grants. For my 3 grants, as best I can determine, approximately 2 years were audited. For the other 2 grants, approximately 1 year was audited. Nevertheless, the auditors found that 132 thousand dollars of those 5 grants had been misspent.

10. Hale Champion, then Financial Vice President of Harvard, and later Undersecretary of HEW, was informed of the auditors' findings and a decision was made to pay back to the government the entire sum of 132 thousand, penny for penny. A payback of this size, without challenging a penny, is most unusual in university audits, I am told.

11. On the basis of these findings the director of the DMSR believed that the mismanagement might be widespread at Harvard and requested in a letter of 10 June 1976 that the HEW audit agency do a general audit of the School of Public Health and all other schools which receive federal grants at Harvard. Twenty days later I was on the street and the people who mismanaged the money were still in place, as if nothing had happened.

In April, 1977, with no apparent sign of follow up audit activity by HEW, I filed a Complaint in court asking for an audit as well as compensatory restoration of my career. I quote from paragraphs 44 and 45 of that Complaint:

> "44. Based upon information and belief, it is alleged that a general audit of federal grants and contracts at Harvard would show wide-spread and large-scale misuse of federal awards, for the relevant period, as well as many preceding years involving millions of dollars. These improprieties derived from Harvard's unlawful and illegal acceptance of the fungibility of direct cost awards. Harvard has knowingly permitted and fostered pooling, fungibility and arbitrary and illegal allocation of direct costs. This

> attitude has resulted in wide-spread and large-scale and illegal redistribution of direct costs in contravention of federal law, regulations and policies and violates the spirit and intent of the peer review system.
>
> 45. Based upon information and belief, Harvard knowingly misused, misappropriated and sequestered indirect costs with the same disregard for federal law, regulations and policies. For the relevant and presently undefined preceding period, Harvard treated all indirect costs from federal awards as allocable to fiscal obligations without due regard to whether those obligations derived from 'benefiting activities'. During the period 1970-1976, Harvard applied for, negotiated for, and received approximately one hundred million dollars in indirect cost awards in connection with federal grants and contracts, of which approximately forty percent was awarded to the medical area in Boston. By sequestration and misappropriation of these indirect costs, Harvard violated federal laws, regulations, and policies, and also denied the rights of and hampered the scientific pursuits of principal investigators whose work would have benefited from all of the support that their indirect cost awards were supposed to have provided."

The wording of these paragraphs is strong. I made a bold prediction, and authenticated the prediction by an oath to verify the Complaint, that both direct and indirect costs had been misused at the University to the tune of millions of dollars. To my knowledge, no PI had ever done this before, with or without lawsuit.

In another paragraph of the Complaint, paragraph 60, I asked that the court order HEW to do an audit. In that same paragraph, I also alleged that Harvard had filed false vouchers with the federal government. That, like the wording in paragraphs 44 and 45 of the Complaint, was also strong stuff. Just how strong has lately been emphasized by the dim view that federal auditors and federal courts take when defense contractors falsify vouchers.

HEW, although informed of the Complaint, and the request in paragraph 60 for a court-ordered audit, did nothing to get the audit started until I raised a fuss in Washington.

The audit finally got started in September, 1977. Now, 8 years later, that audit, which my legal complaint precipitated, has been mostly settled. My predictions of April 1977 have come to pass in ways and on a scale to match the strong wording which my lawyer and I hammered out in the Complaint. The bottom line, as reported by the auditors, is, so far, 15 million dollars, approximately 5 million in direct costs and 10 million in indirect costs.

I am here giving testimony because 15 million dollars is a huge amount of flesh to have been put on the bones of my written prophecies of April, 1977. If the audit of Harvard had found very little, paragraphs 44 and 45 would be dismissed as an expression of free speech by a crackpot. But when allegations of the magnitude set forth in paragraphs 44 and 45 are found to have been accurate, the words of those paragraphs acquire a standing which defines the credibility of the speaker. Now as a person with proved credibility, I address my concerns to you regarding the role of the PI, the status of academic freedom and the present and future health of American science.

The Principal Investigator (PI)

Let's discuss the role of the PI. Let's define who he is by his responsibilities, and then let's ask the corollary: What are his rights? First, the responsibilities:

1. He writes the grant proposal. This doesn't mean, for example, that the university says, we'll work on liver disease so you write a grant on liver disease. It means that the federal government is interested in liver disease, the taxpaying citizenry have liver disease among them and the PI is interested in doing research on liver disease based on his own experience and curiosity. The university is not part of the

selection and review process. In fact, the obtaining of a grant often precedes and is a precondition for a PI's university appointment. The university wants PIs who can raise money to pay their own salaries, money to pay for technicians, supplies, and equipment, money in the form of indirect costs. It wants the money that flows from good research. But the project - that's really the PI's choice and the PI's choice depends alot on the currents that flow in science.

The competition for grants is now, and has been for the past 15 years, fierce. The PI faces this competition; the university does not. It is the PI's record of productivity, creativity and scientific reliability - in short his reputation, the very soul of his career - which the peer review committees (which importantly are deputized as federal bodies for the purpose of peer review) use as a platform upon which to judge the worthiness of the application. The stamp of approval of peer review is a sine qua non of scientific approval by the university. So, the university benefits from an external review process which, they won't admit it, means as much to them as any criterion whatsoever for academic status in science. Favorable peer review helps immeasurably with appointments, reappointments, promotion and tenure. Make no mistake about that.

2. If the PI wins in the competition, he survives. If he repeatedly loses in the competition, he will not be reappointed or promoted. The university wants money and prestige. PIs who win in peer review bring in money and prestige.

3. If the PI wins the grant, he must be productive to win further grants.

4. If the PI misuses federal funds, he can be prosecuted in federal court. I have the court records of 5 PIs who have been criminally prosecuted and convicted. I understand that for every record I have there are another 6 or 7 just from the past several years. I'm not representing or feeling sorry for these PIs; I am merely stressing that the federal government as a rule looks to the PIs, not to administrators, or anyone else, to criminally prosecute for grants mismanagement.

In short, if anything goes wrong with the grant from lack of productivity to manipulation of funds, the PI is the very first person to be looked to as a responsible surrogate for the government in affairs with the university, and surrogate for the university in affairs with the government.

The PI lives in the estuary between the federal government and the universities. He is an essential, irreplaceable link in university-government relationships in science. He derives as much sustenance from the one as the other.

I quote from a 1964 Report by the Committee on Science and Public Policy of the National Academy of Sciences:

> ". . . the principal investigator's work as a scientist is the determining factor in achieving the national purposes envisaged in the grant.
>
> ". . . the negotiation of a project grant begins and ends with the principal investigator. He starts with an idea for research and ends with the support that allows him to go ahead with it."
>
> ". . . the federal government can finance research in institutions of higher learning in the way that relates the award of funds as closely as possible to scientific merit...."
>
> ". . . There is no way for the federal government to make general grants to universities with unspecified purpose, . . ."
>
> ". . . to award funds on the basis of the scientific merit of investigators and their proposals. . . ."
>
> ". . . The purpose of a project, which provides the test of the propriety of the use of federal funds throughout the life of the grant, is first defined by a principal investigator. . ."

> ". . . Approval of the proposal by the university and by the agency means that the investigator will be expected conscientiously to try to reach the scientific objective defined in his proposal. . ."
>
> ". . . If the government's ability to ensure fiscal responsibility is secure, its ability to assist both the investigator and his institution will be increased. . ."
>
> ". . . To deprive investigators who have proved themselves worthy of support, in order that those who have not proved themselves may have a share of support, would mean a lowering of national capability in science. . . ."

A more recent quote from testimony before the Senate Appropriations Committee in 1978 is also unequivocal about who sits at the center of responsibility in American science:

> "The PI is the heart of the biomedical enterprise."

Those are mighty fine words. There is poetry and majesty as they roll off the lips. But let's look at the PI's rights before we get carried away with the importance which attaches to his responsibilities.

What are the PI's rights? Put simply, what happens if the PI, not the university, not the government, not anyone else, sees wrongdoing, specifically, the misuse of his hardwon federal funds by the university, and speaks out about it and loses his job because he has spoken out? Are those who seem to hold him responsible for so many things there to give him succor or even thanks? The answer is: No! The PI who has committed a crime is likely to get more due process than the PI who has been fired for pointing out wrongdoing with federal monies by the university. The PI who is fired for exercising free speech, who is subject to personal attack and intimidation by the university, has no rights, and those who would hold his feet to the fire if he were the wrongdoer seem strangely silent and aloof when the PI points out wrongdoing and is excoriated and humiliated for it.

Academic Freedom

That free speech could be punished by universities may come as a shock to you. I'm sure that you've heard abundant testimony over the years from high officers of universities regarding the need to preserve and defend academic freedom. That phrase, academic freedom, as opposed to the constitutional freedom of speech, is supposed to elevate free speech to the plane of the intellectual and to separate academics from the laiety. Most of the laiety, it is argued by academics, aren't free to speak their minds, even if the constitution says they can. So, the laiety in their wretched, indentured status, as defined by academics, bottle up their feelings and conform to save their jobs. By contrast, it is said that academics, in their state of enlightenment and collegiality, are free to say what they want to without fear of the type of reprisal which the patron saint of academic freedom, Galileo, suffered two decades prior to the founding of Harvard University.

Let's talk some about Galileo. He was one of the great scientists of his or any other time. He had no problem with funding. He got some lenses from Northern Europe. He had lab assistants. He had research space. In short, he ran a lab. He was a PI. He did his experiments, he gathered data. His experiments took a long time to do; so he had funding over a long period, a multiyear grant so-to-speak. He had trouble when he interpreted his results, when he said that the earth went around the sun. The theologians didn't like that interpretation of his data, and Galileo was treated very shabbily by the church of his time. That harsh treatment is part of what modern academics are thinking of when they speak of academic freedom. A scientist, it is said, should be able to report his results without fear of reprisal.

Today's academicians owe a lot to Galileo and, by extension, to Galileo's persecutors. Today's academicians are free to report their results as they see fit without fear of reprisal. Moreover, they're free to speak out even on non-scientific matters. There is hardly an area of domestic or foreign policy which hasn't felt the winds of criticism that blow from academia.

Academicians march through the streets carrying placards, sponsor full page ads in the New York Times and make speeches outside of the university, in protest or in support of all manner of political and social issues. Their moral indignation and self-appointed status as guardians of free inquiry, as well as their articulateness, are counted on to bolster whichever group needs their support.

But what happens when dissent gets a little closer to the heart of academia itself? What happens when an academic, particularly a chairman or a dean, hears dissent about fiscal matters? What happens when a PI says: Where's the money that I won through peer review, that I brought here, that my career is dependent on, that my science can't thrive without? Where is my money?

When such questions are uttered, even in the presence of those who on all manner of political and social issues seem to have so many words to spare regarding human rights, human dignity, freedom, freedom of speech, free inquiry, and collegiality, there is a sudden chill. For academic freedom does not, in the minds of many chairmen or deans, extend to questions about money. But without money, you of the Subcommittee have heard so many times, science atrophies. What's wrong with a PI asking where his money is? There is nothing wrong with the question. It is a very practical question. The problem is with getting an answer, any answer. Most often there's only stonewalling: and, if the question is asked 2 or 3times, it can begin to unstitch the PI's career.

Let's get back to Galileo. With all the persecution for his theories, he still got his results. He did his work. His scientific curiosity, his scientific personality, the driving forces of his professional existence, were satisfied. His work endures. His reputation stands for all time. The names of his persecutors have long since fallen from memory.

Now let us imagine what would have happened if the money for Galileo's lenses had been diverted. Galileo would not have had the wherewithal to do the experiments upon which his reputation is based. He would have had a quiet, noncontroversial life and would have been totally forgotten. His would have been the quiet academic death, which today occurs more times than you think among the winners of peer review competition whose winnings are taken away. The peripheral workings of peer review often make a mockery of the central process of peer review. While academia ardently defends the latter, it subverts the former.

If Galileo were to be asked today: Which would you rather have had, problems with financing your experiments or the problems that developed when your results were published, he would say, I feel sure, that the gathering of the data was the driving force, the soul of his work and personality and that the controversy over the results was secondary, however painful.

I say that there are 2 types of academic freedom as it pertains to science: First, there is a chance to do the science; second, there is a chance to talk about your results or whatever scientific or nonscientific opinions you might have. Galileo had the first and lacked the second. With many PIs today it's the other way around. They can engage in civil disobedience, but they cannot do their work. Things are not as free as they seem. Put another way, academic freedom can be threatened from within as well as outside the university. Many of today's PIs can't use the money that they've won in peer review to do the experiments that the federal government says they can do. These PIs are not free. They have lost academic freedom. They've lost constitutional freedom, too. There is a "new" loss of academic freedom these days. It's less easy to comprehend because its violations occur behind a wall of rhetoric generated by the universities about the "old" academic freedom, the kind Galileo didn't have. The old academic freedom is meaningless in the absence of control over the purse strings of hardwon grants. Free speech isn't free if it applies only to political or social issues. A PI has to be free to speak up when his grants are plundered. You of all people would expect him to do so. You as federal officials have a lot of faith in him and your agencies act harshly when he violates his covenant with the government or the people. When a scientist cheats with data or money he can expect your wrath, and, indeed, deserves it.

It is also in a PI's self-interest to speak up about money. When someone takes your grant he is stealing from you, if you're a PI. This is not stealing in the old-fashioned sense where mink coats, big cars, fancy vacations or yachts come to mind. It's stealing in a new sense: Control over your money is control over your career. What you steal when you divert government money from a PI is the satisfaction, the excitement, the chase, the recognition that flows from accomplishments, which flow from experiments, which flow because money makes them flow. When grants are plundered and the PI can't complain about it without getting fired, the taxpayers are being cheated, too. A meritorious project, funded by a federal process which seeks and awards merit is being frustrated. Besides, an academician's freedom is being eroded, and that's supposed to mean a lot to all of us if you listen to all the pretty words about it.

Who was more free? Galileo or the modern PIs? Galileo did his work and then was silenced. Some modern PIs are silenced first and then told that they are free. Plus ça change, plus c'est la même chose.

If a young PI were asked today, which would you rather have, problems with financing your experiments or the problems that Galileo had, the PI would say, I think, that he would be ready to accept Galileo's problems with controversy over results, after more than 20 years of productive work (that's how long Galileo worked before the church cut him off). The work itself is the excitement of science. Criticism or even persecution can't dim the curiosity, but lack of money can snuff it out.

The Health of American Science

I have some suggestions for safeguarding the health of American science. I don't think it's presumptuous of me to offer these suggestions. I am not a college President or a Dean, but I am an unfrocked PI who bears witness to a mockery of academic freedom. What happened to me should be prevented from happening again. I speak from painful experience. I lost my job because I took my stewardship of a public trust seriously.

There are currents in American science which should worry you of the Subcommittee. All of these are connected with money.

- False vouchers are being mailed by universities across state lines to the Federal government. When this is done by big business, it runs the risk of prosecution under a racketeering statute.

- False data are being sent to journals and in many cases these data are convincing enough to slip by the editors into publication. Attempting to follow the false leads that these false data suggest, many investigators waste a lot of time and money.

- False data are being submitted to the FDA regarding clinical drug trials.

- False expense accounts are being submitted by scientists for reimbursement from federal grants.

- False authorship (bold, naked plagiarism) has been documented at the highest levels of academia.

The falsity is widespread. Each of these falsities seeks money or power or both. The money is either pocketed in the old-fashioned sense or manipulated without pocketing in the new-fashioned sense, but in either case the money means new power.

When a large research university submits false vouchers for direct costs it gains power for those professors who have taken this money from PIs whose careers depend on it.

When a large research university misuses indirect costs, it gains for itself in its competition with all colleges. A college with no federal grants can't misspend indirect costs it doesn't get. A large research university has access to this huge pool of money and sometimes uses it for unallowable and unallocable activities, while rationalizing that its all going for noble purposes. Small colleges also have "wish lists" for noble purposes, but no indirect costs to misspend for those purposes.

A scientist who submits false data and gets them published, wins more grants. More grants lead to reappointments, promotions, tenure, and with each advancement, more salary and more power. Anyone who thinks that the falsification of data is not connected to the later promise of money and power had better think again. Moreover, a person who is bold enough to submit false data to refereed journals where he knows full well the data will be scrutinized, will also have the courage to submit false vouchers to the government where the data often are never read. Falsity, like spilled warm tapioca, has a way of seeping from one activity to another. And in an atmosphere where data are falsified look for false vouchers and you will probably find them.

Below are the corrective measures that I would take. Most importantly, you may be relieved to know none involves greater appropriations. I don't think that the flow of money needs to increase. I think that more money will not correct the creeping falsity. I think that the leaks should be plugged. The leaks are now endemic to the system. When the systen was young in the immediate postwar era, the universities and the scientists, accustomed to living in genteel poverty, saw the funds as a means for buying test tubes, not power.

1. I respectfully suggest that you attach a rider to an appropriations bill which states in effect:

> "Any PI shall not be punished, expelled or sanctioned in any way for raising questions regarding the management of a federal grant or contract on which he is the PI."

Such a rider would strike a blow for academic freedom and fiscal accountability at the same time. The tripartite relationship among the federal government, the PIs and the universities needs strengthening. None of these 3 partners can do without the other. The PI, by far the weakest of the three, needs your protection.

PIs need to keep their grants to do their work. They also need federal rights which are commensurate with their federal responsibilities.

2. I also suggest that indirect cost budgets, which are submitted by universities, be distributed to PIs. This would give a continuous audit of indirect costs.

PIs would be shocked to see what's included by the universities as "benefiting scientific research." Despite all the wailing about indirect costs being inadequate, there is really a lot of fat in them, even considering recent cuts. But this fat goes untrimmed, because the audit agencies do not have enough auditors, because you of the Senate tend to implicitly trust universities and because not one PI in 25 hears of, much less sees, the indirect cost budgets which are submitted to the government.

The PIs raise the indirect costs as part of the awards. The least that you can do is to let them see the budgets, and then protect them when they ask the hard questions of people they are now afraid of.

Don't let the spokesmen for science fool you. There is enough waste with indirect costs to support thousands of new grant proposals, by thousands of PIs. You can get a bigger bang for your scientific buck if you will stop letting universities divert science dollars.

3. I finally suggest that you demand that PIs be interviewed in private by auditors, with no university official in attendance. The following quote from the HEW audit at the Harvard School of Public Health should make you wonder to what ends universities will go to suppress dissent.

> "'All interviews were arranged for us by a representative of the University's internal audit department and at each interview, we were accompanied by a member of the internal audit department, an individual from the SPH business office or a designated administrative assistant(s) from the various departments within the SPH."

The earlier DMSR audit proceeded under no such handicap. Thus, in between audits a radical change in the ground rules for conduct of the second audit had taken place. The PIs already had the chilling example of my termination to remind them of the cost of "telling it like it is." But just to make sure that whatever PIs chose to say in front of the auditors would also be said in front of a Harvard administrator, and therefore would not be confidential, Harvard pushed very hard for and HEW acquiesced to a change in the ground rules of an extremely important phase of the audit.

It is unthinkable that a PI can't have privacy in speaking about grants which he has won in severe competition. Why should a PI not be free to speak with a federal official, an auditor? Why should a university administrator, who paradoxically is paid from the very indirect costs which the PI raises, be in a position to censure, criticize, or retaliate against the PI? Why should the federal government tolerate this blatant intimidation of federal witnesses?

In Summary, you should stop treating universities as favored clients whose dealings are beyond criticism. One by one in the last 20 years we've been disillusioned by the wheelings and dealings of the college-and-university-educated members of our society: physicians, lawyers, businessmen, politicians. The time has come for academics to join that list. The data overwhelmingly show that academics are not above deliberately and willfully misusing taxpayers' money. Let's not avoid seeing the evidence for what it is. There is mockery of peer review. False vouchers are being submitted to the government. There is loss of academic freedom. No amount of rhetoric by university authorities should be allowed to smooth over these multiple transgressions.

You should stop considering universities as more important than the PIs in them. If the universities need federal money to survive, make them fight for it openly the way they expect their PIs to. The best way to stop the misuse of funds would be for you to treat universities the way you now treat other clients who receive transfer payments: physicians, students, welfare recipients. University people are no better, no worse. They have to be watched just like the rest of humankind. Intelligence does not preclude wrongdoing.

Fraud is fraud no matter who perpetrates it or why it's perpetrated. The loss of academic freedom is the loss of constitutional freedom. The crushing of dissent by those who most forcefully oppose such activity elsewhere is unconscionable, hypocritical and inimical to the high purposes of research and scholarship.

STATEMENT OF CYNTHIA H. NULL, EXECUTIVE DIRECTOR, FEDERATION OF BEHAVIORAL, PSYCHOLOGICAL, AND COGNITIVE SCIENCES

Senator GARN. Next, Cynthia Null, executive director, Federation of Behavioral, Psychological, and Cognitive Sciences.

Ms. NULL. Good afternoon. I am Dr. Null, executive director of the Federation of Behavior, Psychological, and Cognitive Sciences. The federation is a coalition of 13 scientific societies with combined memberships of over 90,000 scientists. Thank you very much for the opportunity to comment on the fiscal year 1986 appropriation for the National Science Foundation.

As scientists, we are pleased with the administration's active support for federally funded basic research, as reflected in the proposed fiscal year 1986 budget. It is important to the Nation to maintain a strong Federal role in basic research within the constraints imposed by reduction efforts. We are concerned with attempts to freeze the fiscal year 1986 science budgets at fiscal year 1985 levels.

This subcommittee has a strong history of concern for consistent funding by the Federal Government. Although this will be difficult, you will again demonstrate strong support for the NSF and its programs. I hardly have to tell you the importance of NSF support for basic behavior and cognitive research. Let me give you a couple of examples, however.

Research and behavior science is important to increase knowledge generally, but it can also be used to solve many human problems. For example, we want all of our children to be able to read and to read well. Basic research in letter and word recognition, memory and reading comprehension, to name just a few, will help us to improve the teaching of reading to our children.

Another issue is clear that wearing seat belts reduces the injury in automobile accidents, but how do we get people to buckle up? Ads that encourage seat belt use emphasize what bad things can happen to you if you do not wear your seat belt, but most people assume those bad things won't happen to them. They happen to somebody else.

Well, basic research by behavior scientists, attitude change, and risk taking behavior indicates that we may be doing the wrong kinds of ads. It may be more effective to emphasize the good things that can happen to you by wearing a seat belt, so by advertising you can stay happy and healthy by wearing a seat belt may be more effective than saying you may be injured by not wearing one.

We are in a period of great technological development. However, these developments and the improved use of new technologies will require solutions to fundamental scientific problems regarding the nature of human understanding, learning, and motivation.

Mr. Chairman, we wish to commend the leadership role you and this subcommittee have taken in the area of science education. The need for strengthening our Nation's education programs in math, science, and technology is broadly recognized. We need to improve our understanding of the processes of problem solving and learning to guide the development of new educational materials, including the use of computers in both instruction and testing.

Let me illustrate one example of science education research. A predominant view underlying curriculum design and development and teaching of science is that students learn about science concepts exclusively through their instruction. Much care is taken to avoid talking about any of the misconceptions students may have. However, students begin with strongly held misconceptions of phenomenon that are hard to explain scientific principles and these misconceptions are inconsistent with the scientific principles to be learned, and these misconceptions persist even with instruction.

Students must be taught what is wrong with their naive principles as well as taught the correct principles.

Research relevant to education and mathematics, science, and technologies is cumulative. This research requires continuing support if it is to be sustained and expanded. We are disturbed by the administration's elimination of the ethics and values science and technology programs at the NSF. We believe a visible program on the moral and ethical values of science and technology are important. The importance and concern of the ethics and mores of our current technological revolution is shared by our leading scientists.

We believe such research cannot be effectively funded by the Science Division at SNF. We urge continued support for this small program and that its advisory committee be maintained.

Generally, we support the President's proposed fiscal year 1986 budget. We are pleased with the funding in behavior and cognitive sciences. We are also pleased the present budget recognizes both behavior and social sciences and science education directorate have in research education. The fiscal year 1986 budget for science engineering education maintains the fiscal year 1985 level of $82 million, but only by the addition of a $31.5 million of unspent money to the budget request of $50.5 million.

We are alarmed by this method of maintaining the budget level. This amounts to a substantial cut in SEE's ability to fund research and materials development. We are deeply concerned about future funding levels for SEE. We urge the science and education directorate efforts at NSF in both SEE and BF be strongly supported. We share with you a real concern for consistent funding of science by the Federal Government. It is important to the vitality of our universities, training of future generations of scientists, and pursuit of knowledge. We are grateful for the support this committee has given to behavioral and social sciences. We urge support for the proposed increases in the behavior and cognitive sciences; for continued consistent support of science engineering education, and the restoration of the EVIST programs.

Your consideration of these issues is made more important because of the uncertainties of NSF authorization. Please do not hesitate to call on me or the federation staff if we can be of further assistance during your deliberations. Thank you, again, for the opportunity to share our views.

Senator GARN. Thank you very much, Dr. Null. We appreciate you being here.

STATEMENT OF J. THOMAS RATCHFORD, ASSOCIATE EXECUTIVE DIRECTOR, AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

Senator GARN. Next, Dr. J. Thomas Ratchford.

Mr. RATCHFORD. Mr. Chairman, it is a real pleasure to be here this afternoon as you consider the fiscal 1986 appropriations for the National Science Foundation.

This subcommittee over the years has performed its budget and oversight responsibility with much care and America's strength in science and engineering is greater because of it.

My name is Tom Ratchford. I serve as the associate executive officer of the American Association for the Advancement of Science—AAAS for short. The comments which I shall present are my own, rather than the AAAS board of directors and council. They are, however, consistent with the views of Dr. David Hamburg, AAAS president, who is unable to be here today because of schedule conflict.

AAAS was founded in 1948 and is the world's largest federation of scientific and engineering organizations. Its 137,000 individual members in 100 countries represent all branches of science and engineering. The AAAS Journal—Science—founded by Thomas Edison in 1980, is the premier education vehicle among scientists and engineers. Science 85, with 700,000 subscribers, represents our major effort to communicate science to the general public. The association is proud of its varied programs which cover many facets of science and public policy. They address topics which range from precollege science education to the impact of climate variability and change from international scientific cooperation to opportunity in science for minorities and the handicapped.

AAAS is nongovernmental, attested to by the fact that less than 5 percent of our annual budget comes from any governmental source.

Mr. Chairman, since World War II, the United States has generously supported scientific research. It has done so in both the public and private sectors. The reasons are several. Among them to assure an adequate national defense and enhance economic prosperity and the health of our citizens. It is encouraging to note that the portion of total U.S. R&D funding which comes from the private sector has risen steadily since the early 1960's, and the nonfederal share is now 54 percent. This is a healthy trend indicating that practical, tangible benefits of research are clear to those who make private sector investments. It reflects a realization that real rates of return on investments and R&D are high and technological change driven by the results of R&D is overwhelmingly important in today's international economic competition.

Mr. Chairman, I shall not go into an explanation of why public support is needed in some areas of research while the private sector has adequate incentives to support others. Economists of all types have done so in excruciating detail. Suffice it to say there is general agreement on the need for research support by both the Federal Government and industry.

Research and development do not just happen, however. We need well-educated scientists, engineers, and other citizens to exploit the investments that are made in research and its applications. This means that we need a strong emphasis on science education.

Let me now say a few words about fiscal 1986 R&D funding. Total Federal R&D budget authority proposed by the President for fiscal year 1986 is about $58 billion. This is up from $50 billion in 1985. The big increase is in defense; nondefense R&D is down, and basic research is flat.

The National Science Foundation budget request for fiscal year 1986, $1.6 billion, is $100 million over the previous fiscal year. This is a healthy total. Should it survive the freeze proposals currently being debated in the House and Senate, it will permit NSF programs to grow at a prudent but healty pace.

This does not mean that the fiscal 1986 NSF budget is perfect. There are aspects that need careful scrutiny. There is widespread concern about our underinvesting in science and engineering education. There are other concerns as well.

In a period of increasing international interdependence in research, cooperative international programs at NSF have been reduced substantially. The momentum gained in integrating the concerns of women, minorities, and the handicapped in scientific research and education must not fade. The highly successful initiative addressing ethics and values in science and technology deserves to continue.

Let me add that Dr. Nichols' very persuasive points on the value of museums are well taken.

Moving above and beyond NSF and looking at the overall R&D picture, I would suggest there are several key issues which deserve the attention of the subcommittee and the Congress as a whole.

Let me just flag a few for your later consideration:

First, military support for R&D is tilting dramatically upward. Balance between military and nonmilitary R&D deserves close attention. The long view must not suffer because of demands for short-term results. This implies vigilance in the support of basic science. The need remains to encourage R&D in those areas that are closely related to international economic competiveness.

In basic science, it makes sense to cooperate across international boundaries for a variety of financial and policy reasons.

And finally, the efficiency of our science infrastructure depends on unfettered communications of basic research results, and we should guard against the encroachment of red tape in this area.

Mr. Chairman, I noted earlier that the rapid growth of R&D in this country since World War II has occurred not because of eloquent or effective spokesmen from the scientific or engineering community, although I like to think the President and the Congress have benefited over the years from the advice of my colleagues. It has not prospered because of slick lobbyists or rich political action committees. The reason scientific research has prospered is much more fundamental. It has paid off and the average citizen, together with his or her elected representatives, have recognized this fact. The visions which led to these investments often came from outside science.

In the past, members of this body demonstrated more presence funding science programs than nobel lauriats and agency administrators. My guess is we shall see this repeated in the future.

I shall be happy to respond to questions which these comments or my complete statement submitted for the record has engendered.

Senator GARN. Thank you, Dr. Ratchford. One question. You are stressing the fact that overall R&D was up, that basic research was flat and that it was the military side—you don't mean to imply by that that all of the military research and development just is with the military and does not have rather large spinoffs into the private sector, do you?

Mr. RATCHFORD. I did not mean to imply that at all. If, however, you look at the division between military and civilian research over a long period of time, you will see there is almost a sign wave, an oscillation.

What most informed observers have seen agree is that there is an optimum balance between military and civilian research so that we both can assure the security of our country on the one hand and its ability to compete economically on the other. It is the balance point which I was suggesting needs to be very carefully considered.

I was not proposing a specific percentage on either side at this point.

Senator GARN. I understand. I just wanted to make the point, though, as we just demonstrated on the floor a few minutes ago, it has become so popular to knock the military and it just is not that clear cut. That many of the things, whether we wish they had been developed in another way, have come as a result—our aircraft development, whether we like it or not, the civilian air planes we fly today are largely the result of military research over the years, a lot of those spinoffs. That was the only point I was trying to make. It is not always cut and dry. It is like when we hear the argument constantly, can we afford both guns and butter? Most of the military budget is not for guns; more than half is just for people. It has nothing to do with the B-1, MX's; it is people.

That is the only point I wanted to bring out that it was not black and white or absolutely cut and dry. A lot of that military R&D is out in the private sector as well. Thank you very much.

Mr. RATCHFORD. Thank you.

[The statement follows:]

STATEMENT OF DR. J. THOMAS RATCHFORD, ASSOCIATE EXECUTIVE OFFICER, AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

INTRODUCTION

Thank you for the opportunity of appearing before you as part of your hearings on the National Science Foundation budget request for Fiscal Year 1986. This subcommittee has a distinguished record as a strong supporter of scientific and engineering research and education and it is a personal privilege for me to present my views to you.

In beginning my statement, first let me say just a few words about the American Association for the Advancement of Science -- or the AAAS as it is commonly known -- of which I am the Associate Executive Officer. Our members are about 137,000 scientists and engineers; as affiliates we have 285 other scientific, engineering and technical societies and organizations -- with a total membership of around five million.

AAAS publishes the journals Science and Science 85, the latter being a high-quality general science magazine written for the interested layperson. Finally, the Association also is active in a broad variety of activities in public policy and public understanding of science and technology.

Today I shall comment on a number of topics which provide a general setting for considering the NSF's budget request, and then make several comments on the budget request itself.

OVERVIEW OF RESEARCH AND DEVELOPMENT

In aggregate measures the United States invests large sums of money in research and development; the national total for 1984 -- public and private -- is estimated to be about $98 billion. For the past several years this total has been increasing at a rate of about 11 percent per year so it is probably not a bad guess that the 1985 total will be around $109 billion. Yet, as I will suggest later, aggregate numbers alone do not tell a complete story.

For the past four decades, the United States has supported substantial investments in research and development. These investments have been made for much the same reasons that President Truman stated before a Joint

Session of the Congress on September 6, 1945, only three weeks after war's end, when he said:

> Progress in scientific research and development is an indispensable condition to the future welfare and security of the Nation. No nation can maintain a position of leadership in the world of today unless it develops to the full its scientific and technological resources. No government adequately meets its responsibilities unless it generously and intelligently supports the work of science in universities, industry and in its own laboratories.

Presidents who followed Truman -- Democrat and Republican alike up to and including President Reagan -- have worked with the Congress during their Administrations in building strong Federal backing for research and development. This backing has taken the form of establishing science-and-technology-based organizations, providing budget growth and taking a wide range of actions in science and engineering education, patent, tax and anti-trust areas.

The private sector -- including industry, the universities and non-profit organizations -- has likewise responded to the challenges identified by President Truman. Appendix 1 shows how the relative shares of Federal and non-Federal support of national R&D have varied over past decades and how the total in current and constant dollars has changed during the same period. After declining as a proportion of the national total in the 1950s, the non-Federal share has risen steadily since 1960. Beginning in 1977, the non-Federal and Federal shares became equal at fifty percent each. By 1979 the non-Federal share had inched ahead and gradually increased to a 54-46 percent margin which has held for the past four years.

A Look at Total Federal R&D for Fiscal Year 1986 Compared to 1985 Shows Big Increases in Defense R&D, Decreases in Non-Defense R&D, and Virtually Flat Basic Research

First, to clarify nomenclature, all of my references to FY 1986 budget numbers and comparisons are in terms of budget authority. Among the key observations are these:

- Conduct of R&D is up from $50.4 billion in FY 1985 to $58.2 billion in FY 1986. This is an overall increase of 15.5 percent.

- The big increase, of course, is in defense. Department of Defense military R&D is up from $32.1 to $40.1 billion, an increase of $8 billion or 24.8 percent.

- On the non-defense side, the story is much different. Total non-defense R&D slips slightly in FY 1986, from $18.2 billion to $18.1 billion, a decline on the order of 1 percent.

  NOTE: These figures have not been adjusted for anticipated inflation. If one assumes a 4 percent rate of inflation (about what the Administration seems to be forecasting), the decline in non-defense R&D becomes more significant.

- The decline in non-defense R&D ranges from -2.6 percent for the Department of Energy to -26.0 percent for the Department of Commerce, principally the National Oceanic and Atmospheric Administration.

- Set in the context of these kinds of declines in the non-defense area, NSF's requested 6.9 percent increase looks rather good.

- However, on the negative side, total basic research is virtually flat -- up 1.1 percent from $7.8 billion in FY 1985 to $7.9 billion in FY 1986. Viewing this in constant dollars, this is a significant decline assuming a 4 percent inflation rate.

In summary, the Amount of U.S. Investment in R&D Has Been and Remains Large -- Although There Are Problems as Suggested by Certain Key Comparisons, Domestic and International, Which I Shall Now Address.

KEY DOMESTIC TRENDS

Defense/Non-Defense Comparisons: FY 1981-1986

To obtain a somewhat longer perspective than is given by a comparison of FY 1986 and 1985, I shall show briefly several key comparisons for FY 1986 and FY 1981, the beginning of the Reagan Administration.

- From FY 1981 to FY 1986, total non-defense R&D is down 8 percent in current dollars and is down 21 percent in constant 1972 dollars -- a substantial real decline.

- For the same period, total defense R&D is up 129 percent in current dollars and is up 67 percent in constant dollars -- showing strong real growth.

- Total basic research is up 47 percent in current dollars and is up 23 percent in constant dollars, with defense accounting for only one-fourth of the increase.

- Except for the NSF and NIH, all non-defense agencies of government have experienced real reductions in their R&D budgets during the FY 1981-1986 period, some of them quite serious, e.g., the Alcohol, Drug Abuse and Mental Health Administration (ADAMHA).

These trends reflect clearly stated Administration policies and priorities during the past few years. While R&D in the aggregate -- including basic research -- has been treated very well indeed, it is necessary to raise several cautionary points.

First, if defense and space R&D continue to increase their shares of the total Federal R&D budget, it will be very difficult to support other non-defense R&D even at current levels.

Next, as one looks ahead to the growing family of very large-scale technological commitments, such as the space station and space-based anti-satellite defense systems, the squeeze on available R&D resources could become severe. The combined costs of even a few of these very large projects could add up to many tens of billions of dollars.

Finally, it is surely not unreasonable to be apprehensive about substantial displacement impacts upon resources for general science. Further, there could be severe displacement effects on the supply of scientists and engineers, on university-based research, and upon the applied research that leads to innovation and economic competitive strength.

KEY INTERNATIONAL COMPARISONS

It is clear that very large numbers are seen when we examine total R&D spending in the United States. Further, as close study of the most recent (1982) issue of the National Science Board's Science Indicators shows, the United States still maintains overall scientific and technological leadership in its absolute investments in R&D, contributions to scientific and technical literature, positive balance in R&D-intensive trade, and the sale of technical knowledge.

However, we cannot examine the large U.S. numbers in isolation. As was noted in the Science and Technology report of the Commission on an Agenda for the Eighties, "the sheer size of the U.S. economy results in larger R&D expenditures than those of other countries," but "taking these data in comparative perspective raises serious concerns about international economic competition."

Let me cite several of these comparative perspectives.

- The data in Appendix 1 of my statement shows that from the mid-1960s until about the mid-1970s U.S. R&D was on a plateau; only in 1976 did a distinct growth period begin. And while the U.S. was on this plateau, other nations were experiencing substantial real growth. One indicator of the strong, relative growth of others is this fact: In the 1970-period, total U.S. R&D was twice that of France, West Germany, the United Kingdom and Japan combined; by the 1980-period, the combined R&D totals of the same countries equalled that of the U.S.

- This observation relates directly to the data in Appendix 2 which shows that, as a percentage of GNP, total R&D spending in the U.S. declined steadily from 1964 until a modest turnaround began in 1979. The comparable numbers from Japan, West Germany and the U.S.S.R. increased steadily and substantially during the no-growth/relative decline of the U.S.

- Perhaps of more direct relevance to the competitive international economic scene is the information in Appendix 3 which shows the ratios of civilian R&D expenditures to GNP for selected countries. The substantially larger ratios for Japan and West Germany are significant and substantial in terms of their international economic performance.

- Closely related, and worth noting in terms of international business and economic competition, are the following data: In recent years, Japan has allocated only about 2.4 percent of government R&D to defense, West Germany about 9.4 percent and France about 33 percent -- compared to about 65 percent for the U.S.

- Another facet of the FY 1985-1986 no growth in Federal basic research (shown in the previous section) is demonstrated on page 199 of Science Indicators: 1982. There is a distinct and substantial underinvestment by the U.S. in the advancement of knowledge (basic research) compared to some of our international economic competitors -- our major European allies and Japan. Further, as shown on pages 47-48 of Science Indicators and pages 12-14 of National Patterns of Science and Technology Resources: 1984, there were real declines in the amount of U.S. basic research from the late 1960s until the mid-1970s. At that time both the Federal Government and industry began to make constant dollar increases. While the industry component has continued to experience sustained real growth in the range of 7 percent per year, the Federal Government's support has been much less steady -- ranging from a decline of 1 percent in 1982 to a 7 percent increase in 1984.

Clearly we are a nation which still maintains a scientific and technical leadership role in the world, although just as clearly others are catching up. As a cautionary note to this leadership appraisal, I would summarize several Science Indicators observations. U.S. inventive activity appears to have decreased relative to some foreign competitors. More directly troubling is that the U.S. share of world exports in R&D-intensive products continue to decline. And, as previously noted, other nations continue to increase their R&D investments and activities relative to the U.S. -- particularly in civilian R&D. This is not a set of circumstances and trends which warrants complacency.

SCIENCE, TECHNOLOGY AND THE ECONOMY

Maintaining Our Scientific and Engineering Strength with Appropriate Balances Between Defense and Non-Defense R&D is Central to Powering Our Economy and Providing for Our National Security.

Economists and other scholars have given much attention to understanding the factors that contribute to economic growth -- although the number of such researchers focusing specifically on scientific and technological considerations is not large. Even so, such individuals as Edward Denison, Edwin Mansfield, Theodore Schultz and William Nordhaus have reported results which suggest that scientific and technological advances, or the growth of knowledge, have been a major source of economic growth over both short and long periods since 1929.

These findings have powerful implications for policy -- both in the public and private sectors. In going to the heart of the matter, investment in building the stock of knowledge -- in science, technology and education -- appears to be at least as effective as investment in capital stock (production equipment, tooling and physical plant) in powering economic growth. Such ideas have important implications for the entire range of budget and tax issues now before the Congress.

As noted above, the significant R&D budget increases in the Federal sector of the past few years have been primarily in military R&D. And these very large increases are for the most part being allocated to weapons development. This is an important point because it is very much an open question as to how much "transfer" to the private sector and long-term economic growth results from military R&D, especially weapons development.

This defense/non-defense division inevitably becomes part of the policy debate on the respective roles of the Federal Government and the private sector as the international competitiveness topic has assumed greater and greater importance in recent years. And taken together with the earlier cited international comparisons -- particularly the greater focus on civilian R&D by our strongest economic competitors -- we must be quite careful about assuming that "all is well" because aggregate Federal R&D amounts are increasing at impressive rates.

An essential aspect of "appropriate balance" must deal with the possible long-term implications of real no-growth or declines in civilian Federal R&D. Moreover, the possible reallocation of large numbers of scientists and engineers to military purposes could have serious negative consequences for the private non-defense sector.

Another central feature of "appropriate balance" deals with time horizons. There are enormous pressures at work in this country -- in both the public and private sectors -- for short-term payoff. Often such pressures are antithetical to the time requirements of an effective research and development program. Worrisome flaws in our basic thinking -- our reward systems, our policy making structures, and in the ways we work and live -- are bound up with "the short-term syndrome."

It has been widely argued in the general media as well as in academic settings that differences in perspective on "the short-term syndrome" divide much of Japanese industrial thinking from that of U.S. counterparts. For example, it has been reported that U.S. corporate research in some industries has lagged behind that of Japan mainly because of U.S. preoccupation with short-term payoffs. It was argued that financial pressures worked against the long-term orientation needed for successful scientific work.

The same concerns can be expressed about Federal research and development. For example, within the recent past there has been heavy pressure placed upon the Environmental Protection Agency to focus much of its R&D upon short-term problems. This is understandable in a mission-oriented agency, but it can be overdone. Such trends demand careful scrutiny by senior officials in government and in the private sector; unchecked, they would sow the seeds of future failure on a broad scale.

Industrial Innovation

In recent years, concern about the trends described above -- domestically and internationally -- has taken the form of "the industrial policy debate." A specific focus of this debate has been on the rate of U.S. industrial innovation, which is seen by some as declining. Further, some have seen negative consequences of the perceived innovation decline in terms of U.S. economic growth, productivity improvement and international trade competitiveness.

This debate is very complex and is often polemical rather than analytical. We need a lot of objective inquiry from different perspectives to sort out these deeply interrelated questions and provide a stronger basis for wise policy. It may well be that we need additional ways to increase and encourage R&D investment; hence, the direct connection to today's hearing. But Federal budget increases are only one part of a much larger set of possible actions. Still, there is strong Federal interest in these issues.

In fairly rapid order, the following areas have been addressed in legislation by the President and the Congress:

- A major R&D-related initiative of the 97th Congress was the Economic Recovery Tax Act of 1981 (P.L. 97-34). Provisions of this law are intended to stimulate private R&D investment and charitable donations of equipment to universities.

- In the 98th Congress, P.L. 98-462, the National Cooperative Research Act of 1984, called for the rule of reason to be applied in anti-trust law with respect to joint R&D ventures.

- In a landmark effort, P.L. 98-620 provided amendments to Patent and Trademark Laws which give exclusive licenses to private contractors for patents arising from R&D work they do for the Federal Government.

- In the area of university-industry-Government cooperation, Congress has done two things of note: (1) enacted the Stevenson-Wydler Technology Innovation Act which authorized the establishment of generic technology centers to encourage universities and industry to work together and, (2) The NSF has been encouraged to support on a modest scale university-industry cooperation.

Taken together, these measures constitute an impressive set of actions on a broad policy front.

INTERNATIONAL SCIENCE AND TECHNOLOGY

One of the main features of the domain of science and technology in the decades following World War II has been the major presence of the United States on the international scene in a variety of ways -- in international governmental bodies, in international scientific groups, and as individuals. A principal tenet of our foreign policy has been the encouragement of full U.S. participation in the international scientific and engineering communities -- communities which transcend political boundaries and social and cultural traditions. Sharing the results of scientific research and engaging in a wide assortment of international exchanges between and among developed and less developed nations alike have become central characteristics of these communities.

The growing interrelatedness of the world, a rising consciousness of the imperative to view many problems globally, and plain self-interest in keeping open our windows on science in the rest of the world -- all these factors point toward higher priority on activities and programs in support of international science and technology. However, I regret to say that there has been some slippage in recent years. Those who care about American leadership in world science, as well as American contributions to the general well-being, should take an interest in this problem.

I find the lack of strong focus and the paring down of our international participation especially regrettable with regard to special opportunities and problems emerging in the developing world. These nations are increasingly coming to recognize that science and technology offer great hope in meeting their developmental aspirations for economic and social progress. And they have great respect for American strength in science and technology. It would be an immensely grave mistake to forego these opportunities for American leadership and contributions to the general well-being. U.S. participation in selected bilateral arrangements with countries meeting a set of prescribed political criteria is a necessary but far from sufficient response to this great challenge.

Aside from humanitarian desires for generally making this world a better place for all, there are additional reasons for arguing that it is in the best interest of the United States that we help in the application of science and technology for Third World development. Trade data shows that we export more goods and services to Third World countries than to Western Europe and Japan combined. We have trade surpluses with these countries -- a rarity with our other trading partners.

For the long-term, and in addition to the more traditional aid programs, we should be placing strong emphasis on assisting Third World countries with science-transfer and the development of effective educational structures and systems. We should be establishing a wide variety of cooperative research efforts and exchanges focused on Third World interests and problems. And where Third World countries and their scientists and engineers have the interest and capabilities we should encourage their active participation in the larger global issues that transcend national boundaries. The famine in Africa provides a powerful stimulus for change in economic development strategy with a large role for U.S.-African scientific cooperation.

East-West Relations in Science and Technology

As special topics under international science and technology, I would now like to address two subjects: (1) Support for the International Institute for Applied Systems Analysis (IIASA) and (2) U.S.-U.S.S.R. bilateral relationships in science and technology.

IIASA

We at the AAAS believe that IIASA effectively promotes cooperative research among established scientists -- and young scientists as well -- from East and West and some Third World countries on a number of global problems. We further believe that this is done in a context that advances overall U.S. national interests. For such reasons, AAAS has recently joined in a consortium of U.S. non-governmental scientific associations to support the work of IIASA. I serve as the AAAS representative to that consortium.

The Administration's position on IIASA is that core or institutional support not be provided from the U.S. Government at this time but that IIASA is free to solicit and compete for grants and contracts from U.S. science agencies, subject to State Department approval. This is a step in the right direction from an earlier and more restrictive position but it does not go far enough; a small nucleus of assured funding is highly important to provide a basis for an effective long-term program.

Therefore, I would place a recommendation before the subcommittee: that you consider recognizing the importance of IIASA both to the advancement of international science and to U.S. national interests and that you provide institutional support at a level of approximately $1 million per year, about one-third of the former level. We judge this would be enough to assure a viable program when supplemented with project support by governments and support from the private sector.

U.S.-U.S.S.R. Relations

Relations of all kinds between our two countries have been on the decline since the late 1970s, beginning with the invasion of Afghanistan. In 1982, three of the eleven bilateral agreements between the U.S. and the U.S.S.R. in the areas of science and technology, space, and energy were allowed to expire -- with neither party seeking renewal. Since then, relations have remained chilly and, following the Korean Air Line incident in 1983, the President also suspended the transportation agreement.

However, in June 1984 the President gave an important address in which he endorsed scientific and scholarly exchanges with the Soviet Union. He announced that he was authorizing renewed cooperation under the existing agreements, and that the agencies responsible for these programs should develop more active programs. He did not suggest the re-establishment of those agreements which had been allowed to expire. Since then, the progress has been modest but real.

Given the above cited progress, the findings of a June 1983 report from the State Department to the Congress which found positive benefits to the U.S. from the U.S.-U.S.S.R. bilateral S&T program, and the recent initiative between the U.S. National Academy of Sciences and the Soviet Academy, I would ask this subcommittee to explore with the Administration the reinstatement of the bilateral S&T agreement as part of a constructive and forward-looking move in improving U.S.-U.S.S.R. relations.

COMMENTARY ON THE NSF BUDGET REQUEST

I do not intend to discuss specific budget numbers or line items in any detail. However, I am prepared to make a number of comments about the budget and will also provide several recommendations for you to consider.

As noted earlier in the overview of R&D section, it seems clear that the NSF budget -- at the aggregate level -- fared well in a climate of strong pressures to reduce spending and to come to terms with large deficits. The Administration is to be commended for adhering to its course in recent years of strongly supporting investment increases in the research programs of the Foundation. The budget increase this year of nearly 7 percent -- primarily for research -- is encouraging in an otherwise no growth picture for basic research, as was pointed out in the overview.

The American scientific community has been heartened by the vigorous way in which new Foundation Director Bloch has moved into his job and by the open way he has made himself available to advice from a wide variety of sources. He is a person of exceptional distinction. And while it may be possible to take exception to some of the organizational, program and budget decisions, it appears to be a management environment in which reasonable people may differ but still come to an understanding on reasonable terms.

Science and Engineering Education

Now I would like to address science and engineering education. This is the organizational and program area where many in the scientific and engineering communities find themselves greatly puzzled, and increasingly resteive about the limited progress being made by the Foundation in "getting its act together." We would like to review a number of key points and highlights covering the past five years.

Background

Starting in 1980 with the publication of Science and Engineering Education for the 1980s and Beyond (prepared by the NSF and the Education Department), there has been a large number of studies, reports and books, all of which, in one way or another, point out the urgent need for the nation to strengthen its science and mathematics education. All of them have stressed that it is a time for action, and that this action must come from every level: local, regional, state and national. They have also stressed that there is so much to be done, that there are important roles to be played in both the public and private sectors.

While there are differences on just what the Federal role ought to be, there seems to be no disagreement that there is a substantial Federal role. Furthermore, there appears to be widespread agreement that the NSF and the

Department of Education both need to provide some resources, as well as constructive leadership.

Congress and the Administration, have decided that the major role of the Department of Education in relation to science and mathematics education is to provide block grants to the states, and the NSF is to remain the chief Federal instrument for influencing and providing leadership nationally in science, mathematics and engineering education.

Among the national studies, one of the most important was commissioned by the National Science Board itself. Called the Commission on Precollege Education in Mathematics, Science and Technology, its findings were made available in "A Report to the American People and the National Science Board," entitled Educating America for the 21st Century: A Plan of Action for Improving Mathematics, Science, and Technology Education for all American Elementary and Secondary Students. The objective was to insure that the achievement of the American students would be the best in the world by 1995. The National Science Board endorsed the report.

Where Do Things Stand?

That clarion call for action has not, however, been followed up with any notable vigor by the NSF itself. This, despite firm notice from Congress since 1983 that, like it or not, the NSF was going to have the science education function. It seems reasonable to suppose that the NSB Commission report would be the first step in a thoughtful and energetic response to national needs as set forth in the report itself and which were strongly emphasized by Congress.

First, for the past several years NSF has not spent the money made available to it by Congress for precollege science and mathematics education.

- In FY 1983 $15 million was available but only $1.1 million was spent.

- In FY 1984 $68.6 million was available (from new appropriations and carryover) but only $37.2 million was spent.

- In FY 1985 $87.0 million is available (from new appropriations and carryover) but $31.4 will be carried over to FY 1986.

No one is suggesting that NSF spend money recklessly, but surely over such a span of years it would be possible to expend these relatively small amounts thoughtfully and usefully, when the public demand and the fundamental needs are so great. Of course, the NSF and the nation itself suffered a serious blow when the Education Directorate was essentially destroyed in the first year of this administration. But there has benn time for recovery. This is an urgent national need. No other entity, public or private, can replace the NSF in science education.

There is real urgency for NSF to set in motion the planning steps on how to organize itself and conduct effective programs according to a coherent strategy in keeping with the Board mandate. Congress itself was troubled by this state of affairs and, apparently losing patience, last year decided to require the NSF to get itself on track in education. It appropriated $2 million to enable NSF to seek outside help in setting specific goals, short- and long-term, in aligning priorities, and in budgetary and organizational planning.

This is a matter you may wish to pursue. We deeply believe that continuing Congressional interest will be essential to achieve the national goal in the critical field of science education. Your efforts can only be a positive help to Mr. Bloch as he sorts out the pieces of this puzzle and provides the necessary leadership.

Other Actors in Science and Engineering Education

The wide range and depth of problems in science and engineering education identified in the previous section have drawn a great deal of attention and action on the part of many organizations -- public and private. I am heartened by the growing variety of the responses by states, by school districts all over the country, by corporations, by private foundations, by science museums, and by professional associations such as the AAAS and its disciplinary affiliates.

Each of these entities tends to focus on special elements of science and engineering education. For example, a number of corporations have chosen engineering schools as their focus; the states have been revising curriculum and teacher requirements and standards; and the AAAS has concentrated its energies and programs -- with substantial private foundation support -- on pre-college science and mathematics education.

Because they do not usually gain as much public attention as some of the other activities, I would like to point especially to the growing roles of science and technology museums in science education. All over the country, science museums are experimenting with new forms of reaching out to the people in their areas, and especially to the children. We at the AAAS have found the museums to be uniquely valuable partners in the realm of science education; thousands of our members are now participating in volunteer programs with science museums all over the country.

It is possible that some could conclude that because of this array of activities in science, engineering and mathematics education, there is a diminished role for the NSF. We strongly differ with such a point of view. Indeed, as I stressed earlier, the need for the intellectual leadership and coordinating role of the NSF is stronger than it ever was. No state or foundation or corporation can replicate the special kinds of talent that the NSF can marshall in order to develop the long-range strategies and programs necessary to cope with the urgent problems that face us on a national scale.

NSF International Science and and Engineering Programs

Although I have discussed general international science and technology matters at some length earlier, I would like to focus this part of my testimony directly on NSF international programs. Appendix 4 contains a summary of what NSF considers as its international activities.

A review of why NSF supports international activities in science and engineering reveals two primary reasons: the first relates to the enhancement of science and engineering in the United States and maintaining a position of leadership in critical areas of science and technology through close contacts with centers of excellence in other countries; the second relates to U.S. foreign policy interests and the role of science and technology in advancing those interests.

Often the nature of the research enterprise requires a strong international component for certain problems which are global in nature such as research on the weather, oceans, climate and various biological, geological and chemical cycles. In yet other cases, international collaboration is necessary to provide U.S. scientists with access to specific resources -- physical, biological or geological available only in other countries. Finally, in some fields of research world leadership is found in the form of people and facilities in other countries; the ability to collaborate and communicate with these leaders is essential to the strength of U.S. science and engineering.

In support of foreign policy goals, international science and engineering activities can contribute to strengthening our national defense, to improving the economies of developing nations as earlier discussed, to reducing East-West political tensions and improving general understanding, and to strengthening ties with our allies. Increasingly the Executive Branch has used bilateral science agreements as a form of cooperation with other nations.

For all these reasons, maintaining close and varied links between science and engineering in the U.S. and other countries is vitally important to both domestic and foreign policy goals. The question, then, is how international activities fare in the proposed NSF budget.

First, as Appendix 4 shows, the total seems to be rising modestly; however, it is important to note that the small parts of the budget related to cooperative science efforts under a large number of bilateral agreements administered by NSF actually have been reduced in FY 1986. This turns out to be a few hundred thousand dollars per country for a total of about $7 million. I find this priority rather difficult to reconcile with the overall importance of these cooperative agreements.

The $7 million comes from subtracting the National Academy of Sciences amount (for administering special agreements such as that with the Peoples Republic of China, for example) of a little over $4 million form the $11.4 million estimate for FY 1986.

Today, I am not prepared to address in detail other elements of the international program -- such as the composition of the disciplinary area research projects which NSF estimates at $81.5 million for FY 1986. In view of the intimate way the world is now bound together, and the growing concerns about American leadership, the subcommittee may well find it useful to inquire into this matter at a subsequent date.

In summary, I raise a cautionary word as to whether the budget reflects the kinds of priorities which should be accorded the international area -- or whether we see in another way some of the "pullback" across-the-board in international science and technology I referred to earlier.

Programs for Women, Minorities and the Handicapped

First, and very important, we wish to applaud Mr. Bloch for his concerted efforts to increase the amount of data available in the NSF needed to monitor its equity efforts. In terms of specific actions, we think it very positive that the following actions have been or are being taken:

- The establishment of one new program and one new activity last year that address needed areas: (1) Research Opportunities for Women, a program for new women investigators who have not been a recipient of previous federal research support as a project director; and (2) Research Facilitation Awards, an activity that would augment grants -- to provide additional support that might be required by a disabled scientist, engineer or student on a grant -- to adapt scientific equipment, or obtain specific assistance to accommodate to a disability.

- The support of programs in FY 1986 that have special impact on minorities, women and handicapped.

- The continued emphasis in every directorate to address equity concerns.

NOTE: For a more complete review of the special programs in this area, please see Appendix 5.

On a less-than-positive note, however, I need to point to the absence of programs at the college level in Science and Engineering Education. This absence greatly hampers efforts for minorities, women and handicapped persons because there are retention problems at this level which cannot be addressed under the present program structure. At the same time, we need to expand the use of the option to involve undergraduate students from these groups in research funded out of the regular research grants.

Further, there is significant underfunding of the Research Opportunities for Women Program. Even a doubling would not begin to address the level of proposal pressure being experienced. Four hundred and forty applications to the program in FY 1985 will lead to the granting of seven awards.

More generally, we hope to see improvements in the Directorates in their efforts to increase participation by minorities, women and physically handicapped persons. We would like to see the efforts to bring these groups into the scientific mainstream integrated into the on-going operations of the Foundation. Until that integration takes place on an adequate scale, we need strong targeted programs that build toward enduring institutionalization.

Finally, we hope that the reorganization of the National Science Board means growing attention to equity issues within the broad context of NSF's concern for talent. The largest pool of talent available to do the work of science in the next century is the one whose potential to contribute has been ignored too long -- minorities, women and handicapped persons. The nation must fully utilize this great pool of talent in the future.

Program on Ethics and Values in Science and Technology

In the course of reviewing a large, multi-million dollar budget, it is all too easy to overlook small programs which have been set aside to make way for new initiatives or for projects which have been judged to be of higher priority. One such item is the NSF Program on Ethics and Values in Science and Technology -- or EVIST as it is called. I deeply regret its absence.

EVIST has provided support for research studies, workshops, conferences, symposia and publications on a variety of important topics. The goal of the program has been to provide an explicit focus on the ethics and values associated with the acquisition and use of scientific and technical knowledge. It has represented a symbolic commitment by the NSF to the principle that scholarly research has much to contribute to our understanding of contemporary controversies involving science and technology. One of the great tasks of our time is to work toward the judicious use of technology. We are entering new and difficult terrain. Ethical problems must be addressed.

EVIST is the only program in the entire Federal Government which has provided sustained support for work on ethical and value issues arising from biomedical research as well as science and technology more generally. A brief review of recent EVIST awards illustrates the importance of the research topics it has supported:

- Ethical and value conflicts in food safety decision making
- Ethical implications of trade secrecy, patents and related property controls for science and technology
- Risk-setting, risk-taking, and the introduction of new technologies
- Ethical issues in approaches to research on mental illness and women
- Ethical responsibilities and practice in the use of animals in biomedical and behavioral research
- Ethical issues in human gene therapy
- Moral decisions in discovering and controlling occupational health hazards

The AAAS and other professional groups and academic centers have set up science and ethics programs over the past decade, many of which have been stimulated by the EVIST program. For example, the AAAS has focused increasing attention on the ethics and values area through its Committee on Scientific Freedom and Responsibility; moreover, we have incorporated such ideas into the fundamental objectives of the Association. I find it rather ironic that this very success of the EVIST program is one of the major reasons cited by NSF for its discontinuance; it is as if the undisputed success of the NSF in helping to establish scientific centers of excellence in chemistry or mathematics were used to justify withdrawal of NSF support.

In effect, the NSF position is that supporting the EVIST-type research should now be a private sector responsibility. In part they are correct; foundations, universities, corporations, and associations such as our own should be supporting work in these areas. But is not correct to conclude that these issues are totally a private sector responsibility. We believe that the NSF can and should continue to provide an intellectual leadership role and act as a catalyst for other organizations -- a role it has performed well and often.

We believe that the Federal Government -- and the NSF -- cannot afford to look the other way when crisis and conflict arise from ethical and value issues in science and technology. In the absence of sustained and vigorous scientific inquiry, we are more likely to be left with rhetoric, polemic and anecdote as the basis for solving such problems.

I hope the subcommittee will agree. Specifically, we hope that in your review of this budget you will consider continuation of the EVIST program in its modest form.

Social, Economic and Behavioral Sciences

These program areas have been near the center of discussion of NSF budget reviews in recent years. It is encouraging that the social and economic sciences areas has received a healthy increase for FY 1986 of $5.4 million to a total of $33.9 million; this is a rather better showing than was achieved by the behavioral sciences where the increase of about three percent probably means some loss in constant dollars.

We hope the subcommittee will continue its support for these science areas; congressional actions have been vitally important in recent years in keeping research in these fields alive.

After all, what is more important in the world today than a deeper understanding of conflict resolution? Similarly, recent studies from the Institute of Medicine, National Academy of Sciences, clarify the great importance of behavior for health. Progress here requires strong research in behavioral science and collaboration with biomedical science.

SUMMARY

Mr. Chairman, again let me thank you and the other members of the Committee for this opportunity to present my views. In working with congressional committees over the years I have developed a high respect for the members and staff of the Congress. It is reassuring to observe at first hand the deep understanding held by those in Congress on the vital set of relationships between science, technology and the well-being of our nation and the rest of the world.

Finally, I would like to make several concluding observations and recommendations in summarizing my views:

(1) In looking at the overall R&D picture, the U.S. remains strong and the general state of science and technology is reasonably healthy. My major qualifier is that we must be very careful not to tilt too far toward military R&D in relation to non-defense R&D. Close watch on this balance and its long-term implications is warranted.

(2) Examination of key international indicators suggest that other nations are gaining rapidly on the U.S. in vital areas of science and technology -- and particularly in areas related to performance on the highly competitive international economic scene. This is an important policy domain where Congress has been particularly active in recent years; your continued oversight in this area is strongly urged.

(3) Greater national focus -- public and private -- must be placed on

longer-range perspectives vis-a-vis short-term outlooks. This generally means a vigilant support of basic research.

(4) The importance of international science and technology calls for your close attention in the form of budget and policy reviews -- particularly for cooperative scientific and engineering programs, including those between the U.S. and the U.S.S.R., and cooperative institutes such as the International Institute for Applied Systems Analysis (IIASA), and especially those involving the developing countries.

(5) Another special feature of international science and technology which we commend to your attention is the delicate and intricate balancing of interests between national security and freedom of communication of scientific and engineering research results.

(6) Overall, the budget for the National Science Foundation is good, provided it survives the budget freeze movement. In a time of fiscal pressures, it represents a sound investment in the nation's future. Only in science and engineering education do we seem to have views that differ sharply from those of the Foundation; in the other areas, as noted below, we suggest several modest changes for your consideration.

- o NSF needs to give science and engineering education a higher priority, get itself organized, and formulate a strategic set of programs which will meet urgent national needs.
- o In the context of the overall importance of international science and technology, the downward direction of cooperative science budgets at NSF causes concern.
- o While much progress has been made, the NSF needs to maintain a strong focus on integrating the concerns of women, minority and handicapped persons into the mainstream of research directorate activities.
- o The EVIST program should not be terminated; it is far too valuable in its catalytic role, especially considering the modest level of funding at about $1 million per year.

This concludes my statement. Thank you.

APPENDIX 1

Trends in Federal and non-Federal R&D outlays: 1953 and 1960-84
[Percents]

YEAR	TOTAL	FEDERAL Defense related	Space related	Civilian related	NON-FEDERAL	Total National (Constant Dollars)	Total National (Current Dollars)
1953	54	48	1	5	46	$8,677	$5,124
1960	65	52	3	9	35	19,635	13,523
1961	65	50	6	9	35	20,584	14,316
1962	64	48	7	9	36	21,750	15,394
1963	66	41	14	11	34	23,733	17,059
1964	66	37	19	9	34	25,857	18,854
1965	65	33	21	11	35	26,896	20,044
1966	64	33	19	12	36	28,442	21,846
1967	62	35	14	13	38	29,241	23,146
1968	61	35	13	13	39	29,833	24,605
1969	58	34	11	13	42	29,586	25,631
1970	57	33	10	14	43	28,613	26,134
1971	56	32	9	15	44	27,814	26,676
1972	56	32	9	15	44	28,477	28,477
1973	53	30	8	15	47	29,147	30,718
1974	51	27	8	16	49	28,763	32,864
1975	51	26	8	17	49	28,153	35,213
1976	51	26	8	17	49	29,510	39,018
1977	50	25	8	17	50	30,506	42,783
1978	50	24	7	19	50	32,002	48,129
1979	49	23	7	19	51	33,612	54,933
1980	47	22	7	18	53	35,133	62,618
1981	46	23	7	16	54	36,859	71,912
1982	46	25	7	14	54	38,742	80,317
1983 (est)	46	27	6	13	54	40,784	88,153
1984 (est)	46	29	6	11	54	$43,329	$97,895

NOTE: Detail may not add to 100 percent because of rounding.
SOURCE: National Science Foundation

APPENDIX 2

National Expenditures for Performance of R&D as Percent of Gross National Product (GNP) by Country: 1961-85

YEAR	FRANCE	WEST GERMANY	JAPAN	UNITED KINGDOM	UNITED STATES	U.S.S.R.
1961	1.38	NA	1.39	2.45	2.73	NA
1962	1.46	1.25	1.47	NA	2.72	2.64
1963	1.55	1.41	1.44	NA	2.86	2.80
1964	1.81	1.57	1.48	2.29	2.96	2.87
1965	2.01	1.73	1.52	NA	2.90	2.85
1966	2.06	1.81	1.46	2.31	2.89	2.88
1967	2.13	1.97	1.52	2.29	2.89	2.91
1968	2.08	1.97	1.60	2.25	2.82	NA
1969	1.94	1.82	1.64	2.27	2.72	3.03
1970	1.91	2.06	1.85	NA	2.63	3.28
1971	1.90	2.20	1.85	NA	2.48	3.46
1972	1.86	2.21	1.86	2.11	2.40	3.71
1973	1.76	2.09	1.90	NA	2.32	3.81
1974	1.79	2.13	1.97	NA	2.29	3.74
1975	1.80	2.23	1.96	2.19	2.27	3.78
1976	1.76	2.15	1.93	NA	2.23	3.54
1977	1.76	2.15	1.93	NA	2.23	3.54
1978	1.76	2.24	2.00	2.24	2.22	3.54
1979	1.81	2.40	2.09	NA	2.27	3.59
1980	1.85	2.42	2.22	NA	2.38	3.75
1981	2.01	2.49	2.38	2.47	2.43	3.75
1982	2.11	2.58	2.47	NA	2.58	3.68
1983 (est)	2.16	2.57-	2.58	NA	2.62	NA
1984 (est)	2.19	NA	NA	NA	2.63	NA
1985 (est)	NA	NA	NA	NA	2.71	NA

SOURCE: National Science Foundation, Organization for Economic Co-operation and national country sources.

APPENDIX 3

Estimated Ratio of Civilian R&D Expenditures[1] to Gross National Product (GNP) for Selected Countries: 1967-82

YEAR	FRANCE	WEST GERMANY	JAPAN	UNITED KINGDOM	UNITED STATES
1967	NA	NA	1.51	NA	1.88
1968	NA	1.80	1.59	NA	1.83
1969	NA	1.87	1.63	NA	1.79
1970	NA	2.01	1.79	NA	1.75
1971	1.46	2.25	1.84	NA	1.68
1972	1.47	2.20	1.84	1.50	1.63
1973	1.39	2.07	1.89	NA	1.62
1974	1.43	2.12	1.96	NA	1.57
1975	1.46	2.24	1.95	1.41	1.68
1976	1.44	2.15	1.94	NA	1.72
1977	1.44	2.18	1.92	NA	1.67
1978	1.41	2.18	1.94	1.52	1.69
1979	1.43	2.46	2.05	NA	1.75
1980	1.42	2.53	2.15	NA	1.86
1981	NA	2.58	2.34	NA	1.87
1982	NA	NA	NA	NA	1.96

[1] National R&D expenditures, excluding government funds for defense.
NA=Not available.
SOURCES: National Science Foundation and Organization for Economic Cooperation and Development

APPENDIX 4

NSF

	$ Millions				
	1983 Actual	1984 Actual	1985 Request	1985 Current Plan	1986 Estimate
INTERNATIONAL COOPERATIVE SCIENTIFIC ACTIVITIES					
o International Cooperative Science	—	11.8	4.4	12.5	11.4
o International Scientific Organizations and Resources	—	1.0	1.1	1.1	0.7
Sub-Total	9.9	12.8	5.5	13.6	12.1
INTERNATIONAL RELATED RESEARCH PROJECTS					
o Disciplinary Activities	--	73.5	--	76.9	81.5
SPECIAL PROJECTS					
o Antarctic Programs	—	22.5	—	24.8	26.8
o Ocean Drilling	—	26.3	—	27.6	28.9
	--	147.9	--	156.5	161.4

Source: AAAS

APPENDIX 5

Programs for minorities, women and physically handicapped persons at the National Science Foundation

BACKGROUND

The NSF prides itself on the fact that programs it has supported were always integrated. This includes teacher institutes held in the 1960s on the campuses of "white" institutions in the Southern U.S. But NSF's first attempt to proactively address the underrepresentation of minorities in science came via targeted programs established in the early 1970s.

The National Science Foundation has had various targeted efforts to address the problems of access to science and engineering careers by women, minorities and/or physically disabled persons since the 1970s. These have varied in scope depending on the interpretation of civil rights laws within the agency at the time.

COSIP-D was the first such targeted program. Established in 1972, its aim was to build institutional capability in science and engineering at historically Black colleges and universities. The program was eventually expanded to include colleges and universities whose predominant student population consisted of groups underrepresented in science and engineering (e.g., American Indians, Alaskan Natives, Blacks, Mexican Americans, Puerto Ricans). When the Department of Education (ED) was established in 1980, this program (now known as the Minority Institutions Science Improvement Program or MISIP) along with pre-college teacher training programs for grades K-5, were transferred to ED.

PRESENT STATUS

In ED, MISIP has had a rather tumultuous history with little sympathy or support from top administrators who have limited ground in running merit-based college level science education programs. There have been numerous attempts by Congresspersons to intervene on the program's behalf but with no results. The program remains "at risk" with only one full time staff person trained in science or mathematics, supporting practices and standards aimed at maintaining the integrity of the program. MISIP needs to be returned to NSF where it could provide a base around which to build other college-oriented programs.

In the mid 1970s, the NSF funded experimental projects and programs aimed at identifying and addressing the barriers to women and minorities' full participation in science and engineering. In the late 1970s, a formal Women in Science program was established which supported three types of activities: a contract to test the viability of a Visiting Women Scientists program for the high school level; Career Days for Women in Science and Engineering initially aimed at the college level; and a reentry program to help retool women who already held degrees in science but who may have been out of the workforce because of family responsibilities. All three programs demonstrated their successfulness in various ways.

One might well ask why were these particular programs supported: these were not necessarily the most important or leveraging activities that NSF might have undertaken. But out of the many program options examined by the National Science Foundation, these three were among those that, according to legal interpretations, could be done without violation of existing anti-discrimination laws. These programs were effective, but disappeared in the virtual dismantling of Science and Engineering Education (SEE) in 1981.

Programs for physically handicapped persons were given to NSF in 1977 by the Congress. This was a new special population to the Foundation even though civil rights legislation related to disability was passed earlier in the decade. The program was funded until 1981. Among the projects supported by the NSF PHIS (Physically Handicapped In Science) were curriculum and materials development projects for teaching science to sensory impaired students, summer programs for disabled youth, and workshops for teachers on how to teach science and math to students with various disabilities.

Two other targeted programs were also present in the old Directorate for Science Education: Resource Centers for Science and Engineering (RCSE) and the Minority Graduate Fellowship Program, both congressionally mandated. Minority science organizations testified for and supported the concept of Resource Centers. The program was based on the idea that the problems of minority access to science and engineering were systemic and that the solution must also be systemic. RCSE stressed the notion that all elements must come together in an overall plan to change the perception, teaching, access, place of science and technology in the school, homes, communities and higher education institutions. Each of four centers was funded at $2.8 million for four years. These centers were based at Atlanta University to serve the Southeastern U.S. (1978); University of New Mexico and New Mexico State University to serve the Southwestern U.S. (1979); University of Puerto Rico Rio Piedras and Mayaguez to serve the island (1980); and City College of the City University of New York to serve the Northeastern U.S. (1981). It was originally intended that seven centers would be established, booster grants given to help maintain existing centers, and a network of all centers developed to facilitate sharing of ideas. These plans were dropped in 1981. Two centers are still in operation (Puerto Rico and City College), but these will run out of NSF funds in 1985. The centers were very successful in developing, testing and institutionalizing effective intervention programs for minority and disadvantaged students.

The Minority Fellows program was developed because of the small number of minority students who were successful in the extremely competitive regular fellowship competition at NSF. Talented minority students found it difficult to overcome years of cumulative educational disadvantages and demonstrate their potential for success by way of high scores and grade point averages. The Minority Fellows program was part of a negotiated compromise between the House and the Senate in 1978 which disagreed over whether individual or institutional support was the better route to increasing the flow of minority talent into science and engineering careers. The fellows program persists to this day in the NSF since the problem that stimulated its formation persists -- too few minority science and engineering Ph.D's and too little success by minority applicants in the regular fellows program. The program also persists because it was yoked to the regular fellows program. The Minority Fellowship program gave NSF something else -- very clear, explicit report language that made clear legislative intent to address underrepresentation by minorities in science and engineering through programs -- institutional and individual. Such a broad mandate could not have existed in the past.

A modest program also existed in NSF in the early 1970s to support research by investigators in minority institutions and this continues as the Research Improvement in Minority Institutions Program.

In 1980, Congress passed Title II of the NSF Authorization Act of 1981 — Equal Opportunity in Science and Technology. The law authorized support for a variety of programs, established the NSF Committee on Equal Opportunities in Science and Technology (CEOST), required biennial statistical reporting by NSF on the status of women and minorities in science and engineering, and required several reports from the White House.

The establishment of CEOST by NSF Director, John Slaughter, put into place a mechanism for ongoing monitoring and advisement on equal opportunity issues. When NSF Director, Edward Knapp, explored the place of targeted programs vs. mainstreaming equity efforts, CEOST was in place to help raise key questions about accountability, and monitoring. The decision was made to keep existing targeted programs such as Minority Research Institutions, and Visiting Professorships for Women but at the same time to require the various directorates in the Foundation to outline in detail how they would increase the participation of minorities, women and disabled persons in all their activities — as peer reviewers, on advisory committees and panels, as project directors, etc.

NSF Director Erich Bloch has worked effectively with CEOST and has moved forward aggressively to tackle such issues as: obtaining race, gender, disability information on project directors, assessing the current status of minorities, women and disabled persons on advisory committees and panels within the Foundation, developing a management information system that will allow NSF to monitor itself on a number of different equity indicators.

STATEMENT OF IZAAK WIRSZUP, PROFESSOR OF MATHEMATICS, UNIVERSITY OF CHICAGO

Senator GARN. Next, Dr. Wirszup, professor of mathematics, University of Chicago.

Mr. WIRSZUP. Honorable Senator Jake Garn and distinguished Senators of the HUD-Independent Agencies Subcommittee, thank you for your invitation to testify before this committee on the National Science Foundation and crucial issues in U.S. mathematics and science education.

Senator Garn, I would first like to congratulate you and your fellow crew members on your remarkable flight aboard the space shuttle Discovery. As you know, the success of such missions is a product of team work and training. I would, therefore, also like to salute the vital but less visible team at Mission Control and the still less visible team of scientists, technical experts, and educators who trained all of you.

In a very real way, science education has provided a lifeline not only to the Columbia and Discovery, but also to our Nation. We owe to it our standard of living, our health care, our prosperity, and our security. It is a matter of deepest concern that this lifeline may be at the point of breaking.

As chairman of this committee, Senator Garn, you have shown exceptional understanding and foresight concerning these problems and their effect on the American economy and national defense. In 1981, you acted to prevent the dismantling of the NSF Directorate for Science and Engineering Education, which would have caused irreparable damage; and over the past 3 years you have been instrumental in obtaining the Senate appropriations to help the Directorate increase the scope and effectiveness of its programs aimed at resolving our educational crisis. For this, the U.S. science and educational communities are indebted to you and the committee.

Knowing your committee's concern for the state of American science, technology, and education, I urge you to help prevent a major policy error concerning the NSF Directorate for Science and Engineering Education. The funding limits proposed for fiscal year 1986 will once again put the agency in an extremely precarious position. This could scarcely come at a more inopportune time. The Nation desperately needs an educational revitalization. I, therefore, appeal to this committee to use its considerable influence to persuade the legislative and executive branches of the crucial importance of preserving the Directorate and not only stabilizing but also enhancing its functions and responsibilities.

The United States, as you know, is facing one of the sternest challenges in its history. While the United States is still acknowledged as the world leader in science and technology, American elementary and secondary education, especially in the areas of science and mathematics, is in dangerous condition.

President Reagan has decried a learning gap between students in this country and in the Soviet Union, where he said children are taught algebra and geometry in elementary school.

The fact is that every Soviet soldier completes one of three versions of compulsory secondary schooling and has at least 3 to 4 years more study in mathematics, physics, chemistry, technology, geography, and a foreign language than an average American recruit.

Our continuing educational crisis poses an even more dangerous and difficult challenge than the quantity and quality of technical weaponry at the disposal of the awsome Soviet military machine.

Japan's economic achievements are well known. With 0.3 percent of the world's surface and 3 percent of its population, Japan accounts for over 10 percent of the world's production, and its share of world trade, excluding oil and food, has risen from 8 percent to 15 percent since 1960. The ascendancy of major Japanese industries such as steel, automobile manufacture, shipbuilding, and electronics is closely related to the superior quality of their human resources. Education in technology is especially advanced: engineers have become the symbol of Japanese enterprise, and nowhere is this more apparent than in the fast-growth field of electronics, where Japan produces almost three times as many engineers as the United States and it has approximately half of the population.

In terms of achievement, a typical Japanese student graduates from secondary school with roughly 4 more years of education than an average American high school graduate.

In order to reestablish our country's scientific and technological superiority and economic vitality, and to develop a strong national defense, we must raise the Nation's general level of educational achievement by 3 to 4 years—equivalent to the level already achieved by secondary school graduates in Japan, the Soviet Union, Eastern Europe, and even South Korea and Taiwan.

Thanks to the committee's generous budgeting for fiscal year 1985, the National Science Foundation has been able to strengthen the work of its Directorate for Science and Engineering Education.

The Directorate is the only agency we have with the requisite experience, expertise, and history of close relations with the scientific and educational communities and relevant professional associations. It has a proven record of contributions and the potential to function as a unique national repository of scientific strength and educational values. Its purpose is clear. Its existence is crucial to any revitalization of the Nation's education.

I, therefore, appeal to you, Senator Garn, and the members of the distinguished committee, to prevent a policy error which could cause irreparable harm to the NSF Directorate. Please, preserve this agency with a budget for fiscal year 1986 which will ensure stability for ongoing operations as well as opportunity for needed development.

The Directorate must also have sufficient backing to develop a 1987 agenda that includes both long-range goals and specific, immediate steps to meet our country's greatest challenge.

The Directorate can and should become a nerve center of science education providing initiative, direction, and resources. Among other functions, it could be instrumental in promoting further partnerships, like the University of Chicago School mathematics project, which is generously supported by the Amoco Foundation, Standard Oil of Indiana.

Other universities and the private sector could be encouraged to create similar mainstream curriculum development projects in physics, chemistry, computer science, technology, geography, and primary school science. Through the NSF Directorate you, Senator Garn, and this distinguished committee can lead a bipartisan effort to launch a national mobilization for education.

PREPARED STATEMENT

I submit herewith for the hearing record a statement of May 2, 1985, addressed to you, Senator Garn. I am most grateful for your providing this opportunity. Thank you very much.

Senator GARN. Thank you very much, Doctor. We will include your full statement in the record as well as the addition you just mentioned.

[The statement follows:]

STATEMENT OF DR. IZAAK WIRSZUP, DEPARTMENT OF MATHEMATICS, UNIVERSITY OF CHICAGO

Thank you for your invitation to testify once again before this Committee on the National Science Foundation and crucial issues in U.S. mathematics and science education.

Senator Garn, I would first like to congratulate you and your fellow crew members on your remarkable flight aboard the space shuttle Discovery. As you know, the success of such missions is the product of teamwork and training. I would therefore also like to salute the vital but less visible team at Mission Control, and the still less visible team of scientists, technical experts, and educators who trained all of you.

In a very real way, science education has provided a lifeline not only to the Columbia and Discovery but also to our Nation. We owe to it our standard of living, our health care, our prosperity, and our security. It is therefore a matter of the deepest concern that this lifeline may be at the point of breaking.

Recent comparative studies of mathematics and science education have shown clearly that the United States is undergoing an educational crisis. Our high schools are now producing graduates most of whom are intellectually remote from the great American accomplishments in space exploration, computers, and other technological marvels of our age. An increasing number of Americans lack the science training to understand the essence of these achievements, and few can share in the excitement of scientific discovery on any level.

As Chairman of this Committee, Senator Garn, you have shown exceptional understanding and foresight concerning these problems and their effect on the American economy and national security. In 1981, you acted to prevent the dismantling of the NSF Directorate for Science and Engineering Education, which would have caused irreparable damage; and over the past three years you have been instrumental in obtaining the Senate appropriations to help the Directorate increase the scope and effectiveness of its programs aimed at resolving our educational crisis. For this, the U.S. science and educational communities are indebted to you and the Committee.

Knowing your Committee's concern for the state of American science, technology, and education, and their effect on our economy and defense, I urge you to help prevent a major policy error concerning the NSF Directorate for Science and Engineering Education. The funding limits proposed for fiscal year 1986 will once again put the agency in an extremely precarious position. This could scarcely come at a more inopportune time. The Nation desperately needs an educational revitalization. I therefore appeal to this Committee to use its considerable influence to persuade the legislative and executive branches of the crucial importance of preserving the Directorate and not only stabilizing but also enhancing its functions and responsibilities.

A Brief Review of the Crisis in American School Mathematics and Science Education

The United States is facing one of the sternest challenges in its history. While the U.S. is still acknowledged as the world leader in science and technology, American elementary and secondary education, especially in the areas of science and mathematics, is in dangerous condition.

Over the past two decades, many industrialized nations, such as Japan and some of the countries of Western Europe, and even emerging countries, such as Korea and Taiwan, have recorded outstanding achievements in the education of the general population. Since 1966, the communist-bloc countries have been engaged in an educational mobilization, adopting general education standards and technical training programs of unmatched quality and magnitude. During this same period, the overall achievement levels of American secondary school graduates have not only failed to rise, but actually plummeted. The same downward trend can be seen in literacy and basic skills, where levels which may have been sufficient for survival decades ago are totally inadequate in today's world. The educational level of the American citizenry cannot help but have a damaging effect on our productivity and general economy. Furthermore, no matter how much we invest in military technology, educational decline will continue to undermine our national defense.

Our school mathematics and science curricula are poorly planned and often geared more to arbitrary textbooks than to students' real needs and capabilities. There is a chronic nationwide shortage of qualified teachers in the fields of mathematics, physics, chemistry, computer programming and data processing. In physics, for example, there is one teacher for every two school districts in the country. According to the National Center for Education Statistics, by 1992 there will be a shortage of 278,000 teachers — about 15% of the workforce.

The potential of new technologies, especially calculators and microcomputers, has not yet been fully explored, but some have already been misapplied. Over the past 40 years the United States has produced the best computer hardware in the world; scientists and engineers have created extraordinary instruments for programmed instruction. But as we know, lack of success has tarnished even the phrase "programmed instruction" and is already squeezing out of usage its successor, "computer-assisted instruction." To succeed with new technology, as with new curricula, we need a finer understanding of children's mental processes. This means considerably more research in the psychology of learning and of teaching mathematics, research which has been promoted in the past by the NSF Directorate and supported by you, Senator Garn.

Some Comparisons: The United States, the USSR, and Japan

To make an objective evaluation of American secondary schooling, we ought first to compare it with the educational systems of Japan, America's foremost industrial and technological competitor, and the Soviet Union, the other superpower and America's strategic adversary. Both Japan and the Soviet Union have strongly centralized educational systems with compulsory national curricula and uniform national examinations and standards of achievement. While I certainly do not advocate such centralization for the American form of democracy, I believe it is worth studying these different and highly successful systems.

The seriousness of our educational decline was first made clear by comparative studies of American and Soviet elementary and secondary mathematics and science education and technical manpower training programs. I will review a few of these striking comparisons before turning to additional evidence.

The Soviet Union was the first country to introduce compulsory secondary schooling (in 1975); by now almost all young people complete secondary general education schools or equivalent secondary technical-vocational schools or technicums. The current secondary school graduation rate in Japan is 94 percent, and in the U.S. only 74 percent. Even more telling than these general statistics are comparisons of programs and enrollments in specific subject areas:

- Of some 4 million American students who reach the age of 17 each year, at least 70% have taken what is essentially arithmetic for 9 years. Since such repetition takes no account of their developing abilities, our students emerge from this demoralizing experience without the inclination or ability to pursue secondary school algebra and geometry, the hard sciences, or technical-vocational training. In almost all other industrialized countries, children complete arithmetic in six years; in the USSR and the Soviet-bloc countries of Eastern Europe, arithmetic, in combination with intuitive geometry, is taught in the first five grades.

- Comparisons in geometry are even more disturbing. Only half our students take any plane geometry. Most of them never master it, because we attempt to teach it in a "packaged" one-year course, at an advanced level, to students with inadequate preparation, even though empirical evidence and modern educational psychology tell us emphatically that we cannot. And since our high school students are not being taught solid geometry, they rarely have the workable perception of three-dimensional space that is essential to many areas of science, technical design, and engineering. In contrast, Soviet students study geometry continuously over a 10-year span: intuitive geometry in the first five years, semi-rigorous plane geometry in grades 6 through 8, and solid geometry in grades 9 and 10.

- While the great majority of Americans are struggling with nine years of arithmetic, Soviet students are working through a challenging and comprehensive compulsory mathematics curriculum that comprises six hours per week in grades 1 through 8 and five hours in grades 9 and 10 (a total of nearly 2,000 class hours over ten years). In this ten-year period the Soviet program covers the equivalent of at least 13 years of the best American schooling in mathematics, and does so much more thoroughly and effectively, culminating in ninth- and tenth-grade courses that focus on a comprehensive introduction to calculus.

- American secondary school physics, another building block of science education and technical training, is in extremely poor condition and must be changed radically. Less than one sixth of our high school students take the "packaged" one-year course in this discipline, while in the USSR all secondary school students take a compulsory five-year sequence of physics courses developed in accordance with the latest research in educational psychology. For some 16,000 U.S. school districts the total number of full-time physics teachers (many of whom have never received specific subject training in physics) is 8,000 and shrinking rapidly. The total number of physics teachers in Soviet general education day schools alone is 120,000 and the USSR trains another 8,500 specialized physics teachers every year.

- The pattern continues in other subjects. In chemistry, only 35 percent of our high school students take a one-year course, while all Soviet students complete four years of chemistry, including a full year of organic chemistry. Soviet students also receive six years of compulsory training in biology, one year of astronomy, three years of mechanical drawing, and ten years of workshop and technical training.

- Our educational crisis is by no means limited to mathematics and the sciences. Only 16 percent of our students receive any exposure to geography as a separate subject, mostly in the form of a one-semester course. Geography training — and qualified high school geography teachers — have all but disappeared. In the Soviet Union, on the other hand, all students take a five-year sequence of courses in the physical, economic and political geography of the USSR and the world. The total number of geography teachers in the Soviet general education day schools is 94,000, and 6,000 specialized geography teachers are being trained every year.

- All Soviet children are obliged to take seven years of a foreign language, while fewer than 18 percent of U.S. public high school students study any foreign language, and fewer than 4 percent receive more than two years of foreign language study.

- Since the 1950's the U.S. has dropped from 18th to 49th in a literacy rating of the 157 members of the United Nations.

Japan's economic achievements are well known. With .3% of the world's surface and 3% of its population, Japan accounts for over 10% of the world's production, and its share of world trade (excluding oil and food) has risen from 8% to 15% since 1960. According to an article in the Far Eastern Economic Review, "the ascendancy of major Japanese industries such as steel, automobile manufacture, shipbuilding, and electronics is closely related to the superior quality of their human resources." Education in technology is especially advanced: engineers have become the symbol of Japanese enterprise, and nowhere is this more apparent than in the fast-growth field of electronics, where Japan produces almost 3 times as many engineers as the U.S.

Let us take a brief look at the schooling behind much of Japan's economic success. The Japanese school system consists of a 6-year primary school, a 3-year lower secondary and a 3-year upper secondary school. The first 9 grades are compulsory. The rate of graduation from grade 9 is 99.99%, and the graduation rate for upper secondary school (grade 12) is 94%. In terms of achievement, a typical Japanese student graduates from secondary school with roughly four more years of education than an average American high school graduate. The level of mathematics training achieved by Japanese students can be inferred from the following data:

> Mathematics I (4 hours per week), compulsory in grade 10, comprises algebra (including quadratic functions, equations, and inequalities), trigonometric functions, and coordinate geometry.
>
> In grade 11 40% of students take the easier of the elective courses, Mathematics II (3 hours per week), which comprises probability and statistics, vectors, exponential, logarithmic and trigonometric functions, and differentiation and integration in an informal presentation. The other 60% of students in grade 11 take two courses, Algebra-Geometry (3 hours per week) and Basic Analysis (3 hours per week). Algebra-Geometry comprises fuller treatments of coordinate geometry, vectors, matrices, and solid coordinate geometry. Basic Analysis includes a more thorough treatment of trigonometry and an informal but rather extensive differential and integral calculus.
>
> In the 12th grade 25% continue with mathematics. These students take an advanced course in Probability and Statistics (3 hours per week) and a rigorous course in Differential and Integral Calculus (3 hours per week).

According to one of Japan's leading mathematicians and mathematics educators, Professor Hiroshi Fujita of the University of Tokyo, "The majority of the students should acquire a sound 'mathematical literacy,' that is, a standard competence in mathematics which is required for an intellectual citizen in a society with high technology. Those citizens should have a sound comprehension of useful mathematical notions like functions, solutions, derivatives, probabilities... Furthermore, a society with modern technology must have a considerable number of students of better aptitude study mathematics and its related subjects to some advanced level, so that they can maintain and develop the scientific and technological level of the society."

The Second International Mathematics Study by the International Association for the Evaluation of Educational Achievement surveyed mathematics achievement in 24 countries in 1981-82 and released its findings last fall.

In the area of geometry, the U.S. eighth-grade mean was near the 25th percentile of the international distribution. American performance in measurement was substantially below that level. Precalculus students, who make up the great majority of the senior high school sample in the U.S., achieved at a level substantially below the international mean and in some cases, ranked with the lower one-fourth of the countries participating in that phase of the study. Together with the U.S. in the 25th percentile were Chile, Ivory Coast, Nigeria, Swaziland, and Thailand. Compared to Japan, Hungary and other educationally advanced nations, the United States is simply not in the same league.

There has been a persistent belief, even among American educators, that while the bulk of our population may not be receiving the best education, our top students are as good as the top students anywhere in the world. This contention was recently refuted by a study at the University of Illinois at Chicago conducted by Herbert J. Walberg, Delwyn L. Harnisch, and Slow-Long Tsai. Fifteen-, sixteen-, and seventeen-year-olds from Japan and from Illinois took the High School Mathematics Test developed by Educational Testing Service; the results led the research team to the following conclusions:

> An "average" Illinois high school mathematics student when matched against 100 of his Japanese counterparts, would rank 99th.
>
> Of Illinois high achievers in mathematics, only 1 in 1,000 does as well as the top 100 out of 1,000 Japanese students.

In sum, the vast majority of our high school students have not studied physics, chemistry, geography, or a foreign language, and have had only a modicum of mathematics. Not only do they lack a solid foundation for further training; they cannot even apply basic mathematics and science to simple jobs.

In sum, the vast majority of our high school students have not studied physics, chemistry, geography, or a foreign language, and have had only a modicum of mathematics. Not only do they lack a solid foundation for further training; they cannot even apply basic mathematics and science to simple jobs. This results in a personal tragedy of shattered hopes for countless young Americans. It is also a national tragedy, for it diminishes America's overall position in the world and places a tremendous burden on the economy and society; on industry, which must invest huge sums even for narrow, short-term training; and on institutions of higher learning, which must provide costly remedial courses.

These brief comparisons indicate a particularly dangerous gap between our educational standards and those of the Soviet Union. According to the Washington Post (March 1, 1985), President Reagan has "decried a 'learning gap' between students in this country and in the Soviet Union, where he said children are taught algebra and geometry in elementary school." Even in this twenty-eighth year since the launching of the first Sputnik, it is not generally recognized that the USSR's expanded exercise of power is based on more than just the military arms buildup of the past two decades. Its concurrently developed science education and manpower training programs have created a military-industrial machine manned by highly skilled and educated personnel. The Soviet Union's achievements in the education of the general population and development of a vast manpower pool in science and technology are having an unprecedented impact on that country's scientific, industrial, and military strength.

The Defense Department's 1985 report "Soviet Military Power" released recently by Secretary Caspar Weinberger investigates the Soviet Union's tremendous military arms buildup. The Secretary's report might also have adduced comparative data on the educational background and training of Soviet and American recruits. For the fact is that every Soviet soldier completes one of three versions of compulsory secondary schooling and has at least 3-4 years more study in mathematics, physics, chemistry, technology, geography, and a foreign language than an average American recruit. As I stated in my 1979 Report to NSF, "The disparity between the science and mathematics training of an average Soviet military recruit and that of an average member of our All-Volunteer Army is so great that comparisons are almost meaningless."

Our continuing educational crisis poses an even more dangerous and difficult challenge than the quantity and quality of technical weaponry at the disposal of the Soviet military machine.

While American mathematics and science education languish, with no major national commitment to essential reforms, our disadvantage with respect to the Soviet Union can only increase. At the same time, the highest Soviet authorities are calling for continued comprehensive improvements in elementary and secondary schools and an ambitious expansion of technical-vocational training programs. Among the most important changes to be effected by the April 12, 1984 resolution of the Supreme Soviet are the following:

1. Compulsory secondary education will be extended by one year, i.e., the 10-year secondary general education school will be replaced by an 11-year school; children will start school a year earlier, at age 6 rather than 7;

2. Far more emphasis will be placed on increasing the ranks of skilled workers by greatly expanding the system of technical-vocational schools;

3. The content of existing school curricula and textbooks will be reworked, and improvements made in teaching methods, with an orientation toward practical applications: starting in grade 8, all students will be given intensive workshop training in specially built facilities at nearby industrial plants;

4. Summer vacations will be shortened and children put to work;

5. Teacher training institutes will make a transition to a 5-year curriculum. Teacher salaries will be raised by 30-35 percent, and there will be commensurate increases in benefits, particularly in housing and living conditions. These measures are expected to raise the already high social standing and prestige of teachers. They are being charted in accordance with the Soviet view that the teacher has been and remains the most important factor in the education process.

In addition to this 10% increase in the time allocated to compulsory general education, the changes which will have a direct and major effect on Soviet manpower needs in high-technology industry and the military are those slated for the technical-vocational schools. Under the existing system, the educational common denominator for all Soviet youngsters is the 8-year school. On the basis of academic performance and examination results on completing grade 8, students are channeled into one of three separate educational tracks: a) the academically strongest (50% at present) continue their general education in grades 9 and 10; b) another 10% are admitted, on the basis of entrance examinations, to technicums—secondary specialized schools which train white-collar technicians and middle-level professionals (including teachers for grades 1-3); and c) the remaining 40% enroll in the technical-vocational schools (professional-technical schools, or PTUs), which train skilled workers.

An important feature of the recently adopted reforms is that students will be channeled into the various educational tracks after completing ninth, rather than eighth, grade. This will give skilled workers and technical personnel, who already have a solid training, one more year of general education. The percentage of students channeled into technical-vocational schools will also change drastically, from the present 40% to 60%. This will be effected primarily by decreasing from 50% to 30% the number of students allowed to continue in grades 10 and 11 in the general education schools.

The USSR's educational system is the product of planning, persistent and disciplined effort, and experimentation, evaluation, and investment spanning over half a century. Two factors made these tasks somewhat easier. First, the Soviets were able to build on a tradition of educational excellence dating back to the time of Peter the Great. Second, they could rely on the leadership of the highest scientific and educational institutions of the Soviet Union — the USSR Academy of Sciences and the USSR Academy of Pedagogical Sciences. Scholars from both academies, including such world-renowned mathematicians and scientists as Kolmogorov, Lavrentev, Gelfand, Sobolev, Kikoin, and Zeldovich, took an active part in primary and secondary education, planning curricula, writing textbooks, and organizing specialized schools for the gifted. Such cooperation between research scientists and educators has been a key element in the Soviets' success.

The 1966 Soviet reforms came in response to demands for workers and soldiers with a better understanding of scientific and technological principles. The resulting curricular changes were radical, and achievement standards extremely high; the mathematics curriculum included, for example, two years of compulsory training in calculus for the entire population. No nation outside the communist bloc has ever attempted this. The resulting programs, a significant departure from long-established traditions in Soviet education, were often too ambitious, creating difficulties for overworked students and teachers. This led in the early 1970's to calls for refinements. The open, often heated discussions in the USSR Academy of Sciences from 1979 on paved the way for the decisions of April 1984.

In terms of general education, the recent reforms are designed to raise educational standards even further while solidifying curricular gains introduced after 1966, and to direct the programs more towards applications. They should, for example, promote greater productivity, particularly when they are bolstered by a new program (announced in Pravda March 29, 1985) to bring compulsory computer training courses in grades 9 and 10 to the USSR's 60,000 secondary schools, starting this September.

Since April 1984 Soviet journals and even the daily press have waged an unprecedented campaign to promote new educational efforts, with particular emphasis on computer science and high technology. Mikhail Gorbachev appears to be actively involved in this "task of thoroughly restructuring the system of personnel training — from general education schools through vocational schools to technicums and universities." His personal involvement is a sign of the seriousness of the campaign to increase the efficiency and "intensification" of the economy.

The number of white-collar technicians and skilled workers already being trained in the Soviet Union is without equal elsewhere. In 1982, for example, Soviet technical-vocational schools turned out 2,526,000 skilled workers, of which 1,409,000 were graduates of the so-called secondary technical-vocational schools and technical schools. The same year, Soviet technicums graduated 793,000 middle-level professionals in engineering, agriculture, and management.

The term "secondary," as applied to the technicums or the modern technical-vocational institutions, can be misleading. These schools actually represent a much higher level. In professional-technical and science-mathematics content, their programs correspond to between 2 and 3 years at an average U.S. technical institute or college. In 1982, the Soviets prepared a total of some 2,200,000 skilled workers and white-collar technicians with such training. The same year, the Soviet Union produced the following numbers of certified engineers with training equivalent to our Masters in Engineering programs: 310,700 in industry and construction; 42,800 in transport and communications; 81,000 in agriculture (where emphasis is placed increasingly on advanced agricultural technology).

The recently announced reforms, for which the Soviets have already budgeted 14.3 billion rubles, will involve large-scale construction of new secondary technical-vocational schools to accommodate the tremendous increase in the number of students assigned to this track. The resolution calls for classroom size to be limited to 25-30 students. 4.5 billion rubles per year has been appropriated for teacher salary increases. The reforms are to be completed by 1990.

Each year the Soviet Union produces three times as many engineers as the United States. In 1977, Japan, with half our population, was already producing 5,000 more engineering graduates annually. If America's future strength depends on its trained science and technical personnel, the nation is clearly in serious trouble.

Toward Resolving the Educational Crisis

In order to reestablish and then maintain our country's scientific and technological superiority and industrial and economic vitality, and to develop a strong national defense, we must raise the nation's general level of educational achievement by three to four years—equivalent to the level already achieved by secondary school graduates in Japan, the Soviet Union, Eastern Europe, and even South Korea and Taiwan.

Resolving our educational crisis will be an undertaking of unprecedented magnitude. It is evident that the policies and measures instituted to date do not begin to approach the changes needed. The only answer is a federally led national mobilization for education and a coordinated mobilization in each of the states. This will require a sustained effort by all segments of our society, private and public investment and sacrifice, and, above all, imaginative and engaged leadership at all levels of government.

Some commentators have remarked on America's failed efforts to make lasting improvements in education in the period after Sputnik. If one examines the facts, those efforts have had only limited effect for two reasons above all: the reforms were geared to the more able student, and the impulse was not sustained, perhaps because of an erroneous belief that a short-term, one-shot effort could solve deep-seated problems. This is in sharp contrast to Soviet or Japanese programs developed over a period of decades.

In the past two years, growing awareness has inspired a number of grass-roots movements involving parents, teachers, and leaders of industry and government. We are now witnessing a period of increased hope and expectations on the part of the American public. In some school districts students' performance has even improved somewhat. While these positive developments should be encouraged and expanded, we must not lose sight of the global picture. These are improvements on a relatively small scale. To believe that the measures we are now taking are adequate would be a dangerous complacency. We must continue to measure the state of U.S. education vis-a-vis that of other nations.

International comparisons of school mathematics and science have evoked a mixed response. The bad news is the relative level of U.S. achievement in these areas: our students, as a group, simply do not measure up. The good news is that they can achieve more — as much as their Soviet or Japanese peers — with the aid of more sensibly designed curricula, better teaching methods, and above all, far-sighted educational leadership at the national level.

The things that national educational policy-making bodies have been able to accomplish overseas should be cause for inspiration as well as concern. Americans have always had an eye for what works. What works in education, as the above comparisons demonstrate, is clear policy rigorously designed, implemented, and evaluated by fully empowered national agencies.

One such American agency with responsibility for mathematics and science education is the Science and Engineering Education Directorate of the National Science Foundation. What the Directorate's proper functions are, and whether it is realistically empowered to execute them, are questions of quintessential importance for America's future.

Compelling evidence of our educational crisis has now been available for over five years. One would hope that this information will spur the national leadership to call upon experts and representatives from science, education, and all areas of society and government to mount a nationwide mobilization for education. Such an effort could produce an agenda for a sustained drive in crucial areas where we are particularly deficient, and, by global standards, increasingly out of step. Foremost among them are curricular reform and the complex problems of teachers—preservice and inservice training, competence, recruitment, salaries, and the teacher's role in school and society. These are issues that must be confronted. The responsibilities and treatment of teachers are broader societal issues which nonetheless also deserve scrutiny and action by government at every level.

Our decentralized system of education is an organic part of American democracy, and urgent efforts must be made to improve it. Local, district, and state school boards should retain primary authority for the educational process within their schools. There are extremely important problems which local and state authorities are best equipped to solve. However, some of the crucial issues referred to earlier cannot be handled adequately by the individual states.

Leaving to states and local school boards major decisions concerning complex programs and curricula and their practical implementation has brought to the fore conflicting interests, and, in some states, almost insurmountable difficulties. This policy has produced very mixed results, and even exacerbated the great educational differences that already exist among various states.

Without educational achievement guidelines from the federal government, developments already underway in individual states could actually prove damaging for future generations. In some states, for example, requirements for graduation from high school have been formally raised to include two years of mathematics and one year of science. Achievement requirements, however, have not been specified. Therefore, without deviating from the letter of the law, a high school student could take (as millions are doing now in high schools across the country), "Business Mathematics," "General Mathematics," and "Consumer Mathematics," which amount to little more than arithmetic and a few of its applications. The result is that a student could graduate from high school without ever having studied algebra, geometry, physics, chemistry, geography, or a foreign language, and with a background totally insufficient for any further study, or even for basic vocational training.

The University of Chicago School Mathematics Project

In view of the absence of detailed national guidelines for precollege mathematics achievement and the paucity of curriculum improvement and teacher training programs, I am particularly pleased to report further on an exciting and significant development. I am speaking of a partnership between a major

American industrial corporation and a major university to undertake a highly innovative mathematics pilot program for Chicago-area schools.

Senator Garn, in opening the May 1983 hearings of your distinguished Committee you expressed a number of ideas concerning ways in which the private sector can and should help to resolve our educational crisis. The evolution of the University of Chicago School Mathematics Project has closely followed those well-stated principles. It is especially appropriate to raise this matter at today's hearings on the National Science Foundation, for it was work done under the auspices of the NSF Directorate for Science and Engineering Education which served as the catalyst for this unique project.

The National Science Foundation Survey of East European Mathematical Literature at The University of Chicago prepared 43 adapted translations of Soviet mathematics literature for students and teachers, including the Popular Lectures in Mathematics, which served as a model for the School Mathematics Study Group's New Mathematical Library. It published 14 volumes of Soviet Studies in the Psychology of Learning and Teaching Mathematics and Kruteteskii's Psychology of Mathematical Abilities in Schoolchildren. The Survey's translations have exercised a major influence here and abroad and opened up new directions for research.

It was NSF-sponsored research at the University of Chicago that enabled us to call attention to the remarkable work of Hans Freudenthal and his students, the Van Hieles, on the five thought development levels in geometry. This theory, described in 1959 in a paper La pensée de l'enfant et la géometrie by Pieter Van Hiele, marked a significant breakthrough in the psychology of learning geometry and an ingenious refinement of the theories of Jean Piaget. Several projects in this area, funded by the National Science Foundation and National Institute of Education, have sprung up around the United States. The Freudenthal-Van Hiele theory has also served as the basis for developing promising software for elementary and secondary geometry courses. In short, the benefits of a relatively small investment by NSF have been leveraged into significant advances for American research. More important for the present discussion, research work supported by the Science and Engineering Education Directorate has given rise to a large-scale applications-oriented education program supported by a corporate foundation. Such developments could be multiplied around the country, but there must be leadership and seed money available from a strong NSF Directorate for Science and Engineering Education.

What we are attempting to do at the University of Chicago is respond to crucial problems in school mathematics education with a wide-ranging six-year project. The effort is being generously supported by the Amoco Foundation (Standard Oil of Indiana). Executives and scientists at Amoco familiar with the 1979 studies in international mathematics education produced by the University's NSF Survey of Recent East European Mathematical Literature had discussed the development of a pilot program that could implement some of my recommendations for new curriculum design, instructional strategies, and teacher training. A University of Chicago faculty committee spent a year designing such a program, to be conducted jointly by the University's Departments of Mathematics and Education. Since September 1983 the Amoco Foundation has already provided approximately $2,000,000 to support the University's six-year program.

The program has assembled a rare combination of talent and resources from the University of Chicago, other universities, local school systems, and industry. It has demanded the creative interaction of nine university professors and dozens of teachers, in classroom testing that will soon spread beyond the metropolitan Chicago area to sites as different and distant as Utah and Oregon.The principal goal is to design and implement a far-reaching applications-oriented mathematics program for all students.

Currently, three public elementary schools and twelve public and private secondary schools in the Chicago area serve as the project's pilot schools. Among the pilot program's long-term objectives is the development of a prototype K - 6 curriculum covering all of arithmetic and teaching intuitive geometry. This curriculum, designed for all students, will be accompanied by appropriate new instruction media, including textbooks, videotapes, and computer software. Microcomputers and computer-assisted instruction will be applied from kindergarten on.

At the middle level, a seventh grade transition mathematics course comprising arithmetic, algebra, and geometry is already being developed. Its purpose is twofold: a) to help the many students who, for various reasons, have not mastered arithmetic, and give them another opportunity for further study of mathematics and career development; and b) to prepare the vast majority of students for algebra in grade 8. Such preparation would allow secondary schools to offer the most effective applications-oriented mathematics program for the mainstream (i.e., the middle two thirds) of our school population. This program for grades 8-12 will comprise two years of algebra, one year of geometry, one semester of probability and statistics and one of computer mathematics, and one year of senior mathematics. In combination, this sequence of courses should provide ample preparation for training in scientific and technical professions or indeed for further study in any college program.

In developing new curricula and instructional media, the University of Chicago School Mathematics Project is utilizing the best materials from American, West European, Japanese, Soviet, and other sources. The University of Chicago project is fortunate in having at its disposal the extensive mathematics education collection of the NSF Survey of Recent East European Mathematical Literature. The vast resources at this library offer a rare opportunity for American curriculum developers to capitalize on years of foreign educational research and experimentation.

Rather than rely solely on printed materials, UCSMP has also attempted to provide American curriculum developers with direct personal contacts and first-hand experience of mathematics education elsewhere in the country and around the world. For this purpose, I organized an International Conference on Mathematics Education for the University of Chicago School Mathematics Project. The Conference was held in the University's Department of Mathematics March 28-30, 1985.

The Conference was devoted primarily to the following two major topics closely connected with UCSMP:

1. Development of an Applications-Oriented Mathematics Curriculum (for all children in grades K-6 and the great majority of students in grades 7-12).

2. Innovative Instructional Strategies: methods of teaching mathematics based on educational psychology and new research, including theory and practice of working with microcomputers, calculators, videotapes, films, games, and other aids.

Some 40 foreign and American mathematicians and educators presented papers and participated in panel discussions. There were delegations from Bulgaria, Canada, France, West Germany, Great Britain, Hungary, Israel, Japan, Mexico, The Netherlands, Poland, and Sweden.

The Conference proved to be a major event in mathematics education. The world's most prominent mathematics educator, Professor Hans Freudenthal of the Netherlands, gave a lecture at a special session in his honor. When Professor Hiroshi Fujita was invited to present a paper, he requested that the Conference invite two more Japanese representatives, whose participation was fully funded by the government of Japan. As a group, the foreign and American speakers presented some of the best thinking in this area today. Every attempt will be made to give the soon-to-be-published Conference Proceedings the widest dissemination here and overseas.

The response to UCSMP's International Conference was enthusiastic throughout its audience, which represented practically every segment of American society concerned about mathematics education. A university mathematics professor wrote later and described the event as "the most exciting conference I have ever attended" and "a turning point in my career — from passive participation to active involvement in the mathematical education community." A high school teacher wrote "I found it particularly encouraging to see university mathematicians joined with elementary and secondary school teachers in a common effort to improve the quality of math education. For me the conference was a source of inspiration and concrete teaching suggestions." One of the leading mathematics educators in the U.S termed the conference "a resounding success" and "a milestone in America's slowly evolving recognition of the contributions to be made to American mathematics education by our colleagues in other countries."

The Conference took measures to solicit the input of classroom teachers. It goes without saying that America's educational problems cannot be resolved without the continuing dedicated efforts of our teachers. The success of our partnership between the University and a major industrial corporation depends on the leadership and inspiration provided by the teaching profession, a point underscored at the Conference by the President of the American Federation of Teachers, Mr. Albert Shanker.

The presentations were on the whole extremely thought-provoking and well received. Illuminating talks by twelve foreign scholars described the mathematics programs in their respective countries, providing American educators and state and federal officials with clear, first-hand evidence of foreign achievements and the indispensability of overall curricular changes along the lines being developed by UCSMP.

Speakers and audience alike were highly impressed with the active participation and support shown UCSMP by such internationally known mathematicians as Felix E. Browder and Jim Douglas, Jr. Such involvement by leading research mathematicians is rarely encountered at American colloquia on mathematics education. The American participants were often surprised that the leading mathematics educators in some foreign countries are primarily mathematicians and, in some cases, renowned researchers.

In addition to providing the participants with the opportunity to learn more about UCSMP, America's only comprehensive mathematics curriculum development program, the International Conference yielded a number of benefits:

1. Through Conference papers, talks, discussions and deliberations, the International Conference has brought a wealth of ideas not only to the leaders and staff of UCSMP but also to the American and international mathematics education communities.

2. The Conference has cemented our cooperation with the foremost mathematics education leaders of foreign countries. This means that materials and innovations developed anywhere in the world can more easily be made available to UCSMP — a feature of enormous value to a short-term project.

3. The enthusiastic participation of superintendents, supervisors, and teachers of the Boards of Education of Chicago and Illinois will strengthen our cooperation with the local agencies vital to the success of UCSMP's pilot programs and field testing.

4. The active involvement of mathematics education leaders from other states promises to prepare the ground for the widest dissemination of the UCSMP curricula and materials.

As a privately supported program to benefit schools in a major metropolitan area, the UCSMP is virtually unique in range of operations and breadth of expertise. It has been meticulously designed to yield an educational model for wider implementation and an example of imaginative and forward-looking cooperation between corporations and universities.

Mr. Richard M. Morrow, Chairman of the Board of the Standard Oil Company (Indiana), and the Amoco Foundation have demonstrated uncommon courage and an acute understanding of national issues and social responsibilities in deciding to sponsor such a bold program. To help tackle our educational crisis through pilot programs in what many consider a hopeless area — urban schools — shows extraordinary commitment worthy of emulation by other leaders in the private sector.

Some of the attitudes and principles which led Amoco to support UCSMP can be discerned in the welcome extended to our International Conference by Dr. Keith W. McHenry, Jr., Vice-President for Research and Development at Amoco and the ideologue and architect of the Project:

> "Because I have spent my professional life in doing and directing research and development, I was personally intrigued with the concept of taking the best research on methods of teaching mathematics from around the world and adapting them to the educational culture of our country. A research director's nightmare is that his team will reinvent something that has been invented before. This conference is obvious proof that the UCSMP team is not as much concerned with authorship of ideas as it is with the concrete results those ideas could bring to the classroom....My background in research does allow me to recognize a well-designed experimental program. The emphasis that the Project is placing on classroom trials, feedback, testing of results, and revision of the teaching materials is in the best traditions of science."
>
> "We believe that healthy international cooperation and its sister, healthy international competition, can lead to healthy international relations. I would be less than candid, however, if I did not admit that one of our motivations is to improve the competitive position of the United States."

Mr. Donald G. Schroeter, Executive Director of the Amoco Foundation, was instrumental in bringing this vast educational project to fruition. The vision, commitment and continuous support demonstrated by the leaders of Standard Oil and Amoco offer an excellent example of the kind of initiative that can, and indeed must, be taken by America's corporate foundations.

The UCSMP is headed by Project Director Paul J. Sally, Jr., Professor of Mathematics, Principal Investigator Charles E. Bidwell, Chairman of the Department of Education, and Principal Investigator Izaak Wirszup, Professor of Mathematics. Other leaders of UCSMP components are Max Bell, Naomi Fisher, Larry Hedges, Sheila Sconiers, and Zalman Usiskin of the University of Chicago, and Alan and Shirley Hoffer of the University of Oregon. The program's advisory committee includes Professors Benjamin S. Bloom and Jacob W. Getzels, both members of the National Academy of Education, and Professor Felix E. Browder, a member of the National Academy of Sciences. Dean Stuart A. Rice, a member of the National Academy of Sciences and the National Science Board, has also been of great help to UCSMP since its inception.

President Hanna Holborn Gray has affirmed the University of Chicago's responsibility to elementary and secondary education and its commitment to the UCSMP. We hope that this partnership between the University of Chicago, Amoco, and Chicago-area schools will provide a model for the State of Illinois and the Nation. Whether its successes can be replicated in other disciplines, at other levels, or in other areas of the country depends in no small part on the resolve of Congress to sustain a strong NSF Science and Engineering Education Directorate. Without aggressive investment, U.S. science and mathematics education will continue to reap the meager returns it has shown in recent years.

The NSF Directorate for Science and Engineering Education

Thanks to this Committee's generous budgeting for fiscal year 1985, the National Science Foundation has been able to strengthen the work of its Directorate for Science and Engineering Education. It has appointed an Assistant Director, introduced new organizational measures to improve efficiency, and initiated major recruitment efforts to find the highest caliber staff, since personnel had been drastically reduced in previous years. A new 20-member Advisory Committee for Science and Engineering Education has been appointed. Finally, in a substantial and wise policy shift, the Directorate has decided to place special emphasis in the precollege portion of its science education program on grades K-8, where major curricular and structural changes are most sorely needed.

Having undergone these important changes, the Directorate now conducts the following programs:

1. Research Career Development to promote the development of young scientists and engineers, and thereby help to assure a steady flow of high-ability students through the Nation's educational and research training system.

2. College Science Instrumentation to provide matching funds for support for laboratory instructional equipment to improve undergraduate science, mathematics, and engineering programs in four-year institutions.

3. Instructional Materials and Research, with special attention given to:

   a. instructional materials development;

   b. materials and methods for teacher preparation;

   c. applications of advanced technologies;

   d. research in teaching and learning.

4. Teacher Enhancement and Informal Science Education, consisting of the following:

   a. Presidential Awards for Excellence in Science and Mathematics Teaching;

   b. leadership activities for precollege teachers;

   c. local and regional teacher development;

   d. informal science education;

   e. information in science and mathematics education.

5. Studies and Program Assessment. The Directorate also has the following additional programs under consideration for fiscal year 1986:

a. Research and Development Institutes.

b. Junior Scholars Research (for both high-ability secondary school students and undergraduates).

c. College Faculty Development.

d. Improvement of College-Level Engineering Education.

Progress in the above-listed programs has brought some hope that through the NSF Directorate the crisis in our schools is finally being addressed. Despite the small size of its staff, which includes newly appointed members who will need time to become an integral part of an agency with rather complex responsibilities, much has been accomplished. Unfortunately, serious budget cuts imposed even before the middle of fiscal year 1985 have nearly put an end to the optimistic outlook. There is apparently already a backlog of some 900 proposals in science education, amounting to more than $400 million. Among these are a large number of high-quality proposals which cannot be funded this year. The budget outlook for fiscal year 1986 is reminiscent of the budget for fiscal year 1981, when the work of the Directorate was seriously jeopardized.

Senator Garn, the Directorate for Science and Engineering Education has just begun to make real headway toward one of its major stated goals, namely "providing the Nation's youth with a level of education in mathematics, science, and technology that reflects the needs of the Nation and is the highest quality attained anywhere in the world." It is the only agency we have with the requisite experience, expertise, and history of close relations with the scientific and educational communities and relevant professional associations. It has a proven record of contributions. The effectiveness of its teacher programs, for example, is undeniable: this year, ninety percent of the teachers who received the Presidential Awards for Excellence in Science and Mathematics Teaching had attended an NSF Institute. The Directorate has the potential to function as a unique national repository of scientific strength and educational values. Its purpose is clear. Its existence is crucial to any revitalization of the Nation's education.

I therefore appeal to you, Senator Garn, and the members of this distinguished Committee, to prevent a policy error which could cause irreparable harm to the NSF Directorate. Please, preserve the Directorate with a budget for fiscal year 1986 which will ensure stability for ongoing operations as well as opportunity for needed development. The Directorate must also have sufficient backing to develop a 1987 agenda that includes both long-range goals and specific, immediate steps to meet our country's greatest challenge.

The Directorate can and should become a nerve center of science education, providing initiative, direction, and resources. Among other functions, it could be instrumental in promoting further partnerships like the University of Chicago School Mathematics Project. Other universities and the private sector could be encouraged to create similar mainstream curriculum development projects in physics, chemistry, computer science, technology, geography, and primary school science. Through the NSF Directorate you, Senator Garn, and this distinguished Committee can lead a bipartisan effort to launch a national mobilization for education.

Thank you.

CONCLUSION OF HEARINGS

Senator GARN. We thank you for your willingness to testify, and the subcommittee will stand in recess, subject to call of the Chair. The subcommittee is recessed.

[Whereupon, at 4:27 p.m. Thursday, May 2, the subcommittee was recessed to reconvene at the call of the Chair.]

MATERIAL SUBMITTED SUBSEQUENT TO CONCLUSION OF HEARINGS

[CLERK'S NOTE: The following material was not presented at the hearing but was submitted to the committee for inclusion in the record subsequent to conclusion of hearings:]

RESPONSE OF ASSOCIATION OF AMERICAN MEDICAL COLLEGES TO QUESTION SUBMITTED BY SENATOR GARN

SHARING AGREEMENTS

Question: As we look into trying to stretch the VA budget, do you think that affiliated medical schools can be called on to share in a portion of the cost of the $2 million magnetic resonance imaging devices so that new technologies can be introduced into the VA affiliated medical college system?

Answer: In principle, the AAMC sees no reason why medical schools or their affiliated teaching hospitals and VA facilities could not negotiate mutually beneficial agreements to share the use of the new nuclear magnetic resonance imaging (NMR) devices. The authority to enter into sharing agreements between these two entities is already provided by statute, allowing both medical schools/teaching hospitals and VA facilities to receive and share the most advanced medical resources that might not be available to either party on its own. However, the details of each sharing agreement must be worked out at the local level since circumstances may recommend a certain arrangement in one area and quite a different one in another area. Clearly, agreements of this character will be difficult to negotiate under circumstances in which the distance between facilities is great enough for transportation of patients to be a problem.

For either a school or hospital to capitalize the costs of acquiring and installing NMR devices in VA facilities -- a proposition that the question seems to imply-- presents problems. Such a scheme would be possible if and only if a sharing scheme could be developed in which the purchasing entity could recoup a reasonable part of its investment. Current VA practices with respect to sharing agreements dictate that the user of a "resource" located within a VA facility must pay a service fee for such usage at a price calculated to recover costs. Thus, to finance a piece of equipment located at the VA and then to have to pay a full-cost fee for using it would serve as a disincentive. Again, the importance of the local negotiations to develop a sharing agreement with equitable reimbursement arrangements that are mutually beneficial to both parties cannot be understated.

Because the demand for and usage of these NMR devices is expected to increase substantially in the near future, medical schools without the resources to purchase a device on their own would probably be willing to enter into agreements to share in the use of devices installed in VA facilities and thereby avail themselves of this new technology.

RESPONSE OF ROBERT HILBERT, GENERAL MANAGER, SALT LAKE COUNTY WATER CONSERVANCY DISTRICT, TO QUESTIONS SUBMITTED BY SENATOR D'AMATO

PRACTICAL VALUE OF RESEARCH

Question: Do the water utilities in New York and throughout the country see practical value in the research projects you mention in your testimony? What would be the effect on these utilities if this research were not available?

Answer: Yes, water utilities throughout the country benefit directly from the research projects funded and conducted by the American Water Works Association (AWWA) Research Foundation. The Foundation's entire program--project planning, development, selection, and monitoring--operates under the paramount requirement that the result has to be directly applicable to the practical operation of North American water supply systems.

To illustrate the practical nature of the Foundation's research program, reference is made to the "Summary of Current Research Projects" attached to the Research Foundation's statement to the Committee. Just a glance through the list indicates that all of the projects will produce practical value to the water supply industry. A few deserve mention because of their particular timeliness and importance. The Foundation is sponsoring three projects on the detection and removal of the Giardia lamblia organism from drinking water. These projects have direct applicability across the nation. They are of interest to New York City, which is investigating various treatment schemes, and to Rome, NY and other cities and towns in Pennsylvania, Utah, Colorado and elsewhere which have experienced disease outbreaks.

The ozone research being funded by the Foundation will provide a direct and immediate benefit to utilities which, like New York City, are presently investigating this process for use in their water treatment train.

The Foundation's four studies on trihalomethanes and two major investigations on water quality deterioration in distribution systems will provide information and guidance which will be valuable to almost every utility in the country.

In addition to sharing an interest with the Environmental Protection Agency (EPA) in these problems, the Research Foundation is the sole active agency in other research areas. The Foundation's support of work directed at tastes and odors in drinking water is unique among funding agencies. While taste and odors are not regulated they are still considered the most important factor in consumer satisfaction. The Foundation's work in algae control, corrosion control, and the rehabilitation of water distribution systems fits into this same category.

If this research were not available to water utilities one major effect would be a duplication of effort at the utility level and a terribly inefficient use of funds. Research has to be done and if it's not done by a centralized agency then it will have to be done by each utility. For instance, the ozone research being funded now by the Research Foundation will reduce the need for similar investigations at New York City, Denver, Los Angeles, Hackensack, Miami, Louisville and hundreds of other sites. A collective pool of funds and talent directed at the common research needs of the industry makes good economic sense and good research sense. It also describes the Research Foundation.

A second consequence of not having a research program such as ours is that literally tens of thousands of very small water systems would remain incapable of responding to the growing threats of chemical contamination, microbiological organisms, and other water quality and economic problems. Existing technologies and operational requirements are beyond the small community's reach. The AWWA Research Foundation has underway what will become a multi-year effort to develop small-scale, cost-effective technologies and operational procedures.

GROUNDWATER RESEARCH

Question: On Long Island, New York, where residents are dependent on groundwater supplies, there is tremendous concern about groundwater contamination. Do you have any projects which deal with this issue?

Answer: The AWWA Research Foundation is in the forefront of science and technology pertaining to groundwater contamination. The Research Foundation developed and published a manual on the occurrence and removal of volatile organic contaminants from groundwater that is widely recognized as the most comprehensive reference of its kind in the world today. The Foundation is sponsoring two critical groundwater projects of particular importance to Long Island water systems. In the first, a small Pennsylvania community is evaluating various techniques, including in-well aeration, for the removal of trichloroethylene from groundwater. In another study in Tennessee, a novel iron and manganese removal technique is being investigated.

In addition to iron, manganese and volatile organic contaminants the water systems on Long Island have several interests in common with utilities throughout the nation. For instance, the corrosion study the Foundation is funding at the Suffolk County Water Authority will have great applicability nationwide to all types of water systems--large, small, surface water and ground water. The projects the Foundation is sponsoring on granular activated carbon technology are helping to expand the frontiers of that process which may find application throughout the U.S. Further, the research being conducted on small system technologies will be appropriate for all water utilities that serve less than 10,000 people.

Through the Foundation's work with the Long Island Water Conference we are quite aware of the problems of that area. Essentially they are the same problems that are experienced by many small community systems throughout the country, with the possible exception that the members of the Conference have identified those problems and are aggressively moving forward--in some instances, hand-in-hand with the Research Foundation,--to resolve them.

QUESTIONS SUBMITTED FOR THE RECORD BY SENATOR ALFONSE D'AMATO

Question: A GAO report prepared at the request of the Chairman of the House Appropriations Subcommittee on HUD and Independent Agencies states that school district officials do not believe that EPA's technical guidance documents are adequate for making decisions on asbestos in schools. It is my understanding that EPA is planning to issue its revised and expanded technical guidance documents in June of 1985. Do you agree that the present documents are inadequate? Are you satisfied with EPA's progress on this issue?

Answer: Before responding specifically to this question, I think it is important to differentiate between the broad universe off all schools that contain asbestos (estimated to be at least 31,000) and those schools which will receive federal funds under Asbestos School Hazards Abatement Act (ASHAA) to perform abatement work.

NJEA/NEA agree that there has been poor quality abatement work performed in some schools in the past. This is at least partly a result of the lack of clear EPA standards for establishing appropriate risk assessment and abatement procedures. We are confident however, that abatement work performed in schools using ASHAA funds will be done in an appropriate, safe, and quality manner.

We take this position, because schools receiving ASHAA funds must follow EPA procedures for determining contractor qualifications, for evaluating asbestos hazards and appropriate abatement actions, for advising and protecting school employees performing abatement projects, and for disposal of removed asbestos-containing materials.

EPA has sent a 25 page document to all local education agencies providing standards to be followed in each of these areas by schools awarded ASHAA funds.

As you noted, these documents will be expanded and revised in June of 1985. We believe that in its implementation of ASHAA and its setting forth of the required standards, that EPA has carried out Congressional intent. While we are hopeful that the June guidance documents will provide additional useful advise to schools, we are generally satisfied with EPA progress on this particular issue.

Question: Officials at the State and local level have said they want more specific guidance to define when asbestos exposure is at a level that warrants action. It is my understanding that EPA has not established any standard to ascertain at what level action should be taken to abate the risk, but rather has developed a hazard ranking system that may help school districts assess the relative levels of exposure associated with different asbestos conditions. Do you agree that this definitive standard is necessary?

Answer: NJEA/NEA would like to see a clear standard set by EPA which would be used to determine when friable asbestos presents a hazard.

We believe such a standard should be promulgated as a rule by EPA and should apply to all schools in the country. If, as EPA claims, a single statistical standard or mathematical risk assessment formula is not feasible in this area, then we would recommend a procedural standard which mandates the exact steps that schools must take in assessing asbestos problems. Such steps should include requirements for analysis of suspected asbestos containing materials by certified laboratories, development of an appropriate abatement plan and use of certified contractors in any abatement work.

Question: Do you believe EPA should require school districts to remove loose, or flaking asbestos and set standards for that removal?

Answer: Absolutely. NJEA/NEA is on the record, in testimony before Congress and in comments submitted to EPA that each school district should be required to abate any existing health hazard by ending exposure to friable asbestos. However, in November 1984, EPA formally decided not to issue such an abatement requirement. We believe the Congress should mandate that EPA develop such rules and standards. I would like to insert for the record NEA's comments to EPA on our proposed abatement rule, which were submitted in April 1984.

Question: Do you support the idea of an independent governmental unit to monitor and inspect abatement actions?

Answer: NJEA/NEA has not taken a position on this specific issue. However, we do agree that there must be an inspection of abatement actions to ensure they are complete and properly performed. If EPA is not capable of doing this (which appears to be the case based on their current staffing level) then an adequately funded independent unit might be the appropriate mechanism.

ENVIRONMENTAL PROTECTION AGENCY

Comments of National Education Association: The Need for a Rule Requiring Immediate Abatement of the Health Hazard Caused by Asbestos in the Schools[1]

Introduction

The National Education Association (NEA) has a twofold interest in the outcome of this proceeding. First, the vast majority of NEA's approximately 1.7 million members are employed as professional educators, maintenance workers and other support employees in schools throughout the United States. A significant number of our members are at risk because of a health hazard that exists in thousands of those schools. Specifically, the Environmental Protection Agency (EPA) and the Department of Education estimate that 14,000 schools,[2] 8,600 of them public schools, presently contain friable asbestos materials which, in turn, means that approximately 650,000 teachers and other personnel are exposed each school day to a substance whose capacity to inflict fatal or incurable illnesses is all too well known. Nor is NEA interested in this proceeding solely because of the health risk to our membership. We are also concerned about the more than 3,000,000 children who attend the schools. Indeed, there are recent indications that these figures may actually underestimate the number of schools wherein friable asbestos will be found and thus the number of persons exposed regularly to this potent health hazard.[3]

Thus, while NEA is pleased to be participating in this critically important proceeding, it is fitting that our submission begins on a somber note. The public hearing scheduled for May 7th will be convened under the gravest of circumstances: there is a health emergency of major proportion in the schools and all interested parties are on notice of its existence.

Furthermore, this emergency is destined to become even worse. Every day that the asbestos hazard is permitted to go unabated, the likelihood increases that eventually there will be a larger number of victims. As Dr. Irving J. Selikoff,[4] the Director of the Environmental Sciences Laboratory, Mt. Sinai School of Medicine in New York City, and the country's recognized authority on the health effects of asbestos exposure, has explained:

> Asbestos exposure today gives cancer risks that cannot be nullified even tomorrow. A year from now will have allowed another year's asbestos to accumulate in the tissues of the victims.[5]

The highest calling of Government is to respond to the demonstrated public health needs of its citizens. This proceeding offers the EPA an uncommon opportunity to prove that Government has the capability to meet that challenge. Unless the EPA grasps this opportunity, the number of lives lost unnecessarily will mount and mount.

To deal with the problem in this proceeding, the EPA must use its rulemaking authority to require that each school abate its asbestos hazard by ending further exposure as quickly as possible. In the presentation that follows, we initially set forth the undisputed facts demonstrating that continuing to expose teachers, other school employees and our children to asbestos constitutes a serious health hazard; we then explain how the EPA's existing rule has failed to abate that hazard and why it is now imperative for EPA to promulgate an abatement requirement. Finally, pursuant to the invitation contained in EPA's Response to Citizens' Petition, 49 Fed. Reg. 8450 et seq. (March 7, 1984), we set forth in an Appendix NEA's recommendations for the specific elements of a comprehensive abatement program.

The Pertinent Undisputed Facts

We begin with a brief recitation of the pertinent undisputed facts that provide a compelling justification for the abatement requirement NEA is urging.

1. From the end of World War II until 1973 -- when EPA banned the spraying of asbestos-containing insulation in buildings[6] -- asbestos regularly was placed in schools throughout the United States. Asbestos generally was used in insulation; the asbestos-containing materials were sprayed or trowelled on support columns, ceilings, walls and pipes. Many thousands of tons of such asbestos-containing materials are presently in place in our schools.

2. Health hazards exist because that asbestos is in a friable condition -- i.e., when it can be crumbled, pulverized or reduced to powder by pressure, vibration, deterioration or damage. As the EPA pointed out in "Asbestos-Containing Material in School Buildings: A Guidance Document" (1979), when asbestos is in a friable condition there are a wide variety of commonplace daily occurrences which can trigger the release of asbestos fibers into the atmosphere, including a ball hitting a gym wall or ceiling, normal custodial activity, water damage from plumbing or roof leaks, and building vibration from sources inside or outside the school. For this reason, the continued presence of asbestos in a friable condition is literally a time bomb.[7]

3. Even at relatively low levels of exposure a person may inhale hundreds of thousands of asbestos fibers in a single day. Once inhaled, these fibers remain lodged in the lungs indefinitely and can lead to various incurable diseases -- the most common of which are asbestosis,[8] mesothelioma,[9] or lung cancer.

4. Asbestos in the schools is especially pernicious because medical experts have concluded that children exposed

to asbestos fibers are more likely to develop cancer than are similarly exposed adults.[10] More than ten years ago, Dr. Selikoff testified before the United States Senate on the health effects of leaving our children exposed to asbestos in the schools. Given the long latency periods (frequently as much as forty years) between initial exposure to asbestos fibers and the onset of diseases associated with such exposure, the thrust of his message was simply this:

> Prevention of cancers in the year 2000 has to be our concern in 1973. It is what is happening in 1973 which will become evident in the year 2000. Whatever our children inhale in March will be added to whatever they inhaled in February."

Eleven years have now come and gone since Dr. Selikoff sounded that alarm. It has not been adequately heeded.

5. The inevitable effects of exposure to asbestos are beginning to take their toll. We are aware of soon to be released research conducted by the University of Southern California Medical School on a large cohort of about 500 school custodial workers in Los Angeles. The affected workers average 48.5 years of age with exposure to asbestos on their jobs averaging 18.7 years. Of the 205 cases which have been summarized to date, 21 percent have indications of lung and/or pleural (lung lining) abnormalities -- a significantly higher percentage than that found among persons of the same age in the general population.[11]

EPA's Response to Date Has Been Inadequate

EPA initially addressed the problem of asbestos in the schools in 1978 by instituting a Technical Assistance Program (TAP), the essential purpose of which is: to encourage states and school districts to establish voluntary programs to detect and abate asbestos health hazards by providing technical expertise to aid them in doing so. Although TAP has generated certain useful information, it has not stimulated a significant number of voluntary detection and abatement programs.

In May 1982 EPA promulgated its Asbestos in Schools rule requiring all Local Education Agencies (LEAs)[12] to conduct asbestos identification and notification activities by June 28, 1983. Specifically, each LEA was required to:

- inspect all school buildings for friable materials;
- sample and analyze all friable materials to determine if they contain asbestos;
- keep records of the results of the inspection, sampling and analysis;
- notify Parent Teacher Associations (PTAs) and school employees in writing of the presence of friable asbestos; and
- post warnings to school employees of the location of friable asbestos materials and provide to custodial and maintenance employees a copy of the EPA publication, "A Guide for Reducing Asbestos Exposure."

(48 Fed. Reg. 23360 _et seq._)

The rule stopped short of mandating elimination of exposure to friable asbestos. Apparently, the EPA believed that an abatement requirement was unnecessary on the premise that once PTAs and affected employees were notified of the presence of friable asbestos in schools, they would immediately launch into action and jointly exert sufficient leverage through the public media as to embarass, threaten or cajole the school districts into eliminating the hazard. We are hard-pressed to understand how the EPA could have seriously thought -- even for one moment -- that this pseudo-enforcement scheme would result in the elimination of the asbestos hazard throughout the nation's schools. And given the incredibly high stakes involved, it is especially regrettable that EPA ever chose to adopt that scheme.

Based upon its own experience, EPA now appears to concede what we anticipated from the outset: the 1982 rule has failed to achieve its ultimate objective -- abatement of the hazard.

This is evident from an internal report prepared in December 1983 by the members of a Management Review Team (selected from EPA's Office of Management Systems and Evaluation and Office of Pesticides and Toxic Substances), which includes the following findings and conclusions quoted below:

> 1. *Compliance with the rule has been poor at the LEA level.*
>
>   Our study of 275 inspections demonstrated that over two-thirds of the LEAs were in violation. The total number of violations in all areas was 752, the most frequent being violations of requirements for sampling, recordkeeping and notification of parents. Although there were high violation rates in all areas, *our most important finding in this area is that the LEAs have been reluctant to notify parents and employees of the results of those inspections which identified the presence of friable asbestos in schools*. [p. 4]
>
> 2. [Consequently,] only half of the LEAs with friable asbestos in schools had properly notified parents. [p. 6]
>   LEA officers are reluctant to notify parents because they believe this will result in redirection of limited operating funds and/or create unnecessary panic or hysteria.[13] [p. 6]
>
> 3. [O]nly a few of the schools reported to contain asbestos had plans to take abatement action and the majority of schools found to be in need of abatement had not initiated abatement plans. [p. 8]
>
> 4. In cases where abatement action was undertaken prior to June 28, 1983, the LEAs are exempt from all portions of the rule including posting warnings and notifying parents.[14] Of the 275 LEAs inspected to date, 65 claimed some of their schools to be exempt, most because they had encapsulated friable material when it was found or did not find friable asbestos. There is no provision in the rule for reinspection of these schools or for maintenance of encapsulated material. This is particularly important in cases where encapsulation has taken place because such action is recognized by the Agency as only temporary.[15]
>
> 5. *Resources for compliance monitoring are inadequate given the degree of effort required to ensure compliance*. At the current rate of

> inspection, it would take EPA more than five years to inspect ten percent of the LEAs in the country. This is totally inadequate given that this program was originally planned to last only two years. Moreover, there is no provision for reinspection of schools to ensure that nonfriable materials remain so and there are no resources available to reinspect schools that are found to be in noncompliance. Because the rule did not require reporting by schools, it is difficult to efficiently target inspections.

This preliminary report, which is now being updated, points to but one conclusion: where school boards have been left to their own devices, free of any mandatory abatement obligations, they have not taken steps to abate the hazard. Many school districts have refrained from notifying their employees and PTA's that a hazard exists, apparently for fear that they then would have to expend the money, time and effort to eliminate the hazard -- commitments they were not prepared to meet. In sum, EPA's prior initiatives were directed at "prodding" school districts into action. Whatever the theoretical merit of that approach, we all recognize today that it has not accomplished its objective. Indeed, to the extent that the rule requiring notice to affected school employees and PTA's [illegible] identified asbestos hazards may have lulled EPA into believing that no further regulatory initiatives on its part were necessary, the net effect of the rule may actually have been negative.

What Remains For EPA To Do in This Rulemaking

EPA itself has acknowledged -- at least implicitly -- what its next step must be in carrying out its responsibility to protect the public. In EPA's March 1984 Response to Citizens' Asbestos Petition, the Agency explained that it "initially intended to institute a two-part program, the first part consisting of asbestos identification and notification requirements, the second part consisting of an assessment and abatement program . . ." but that it "subsequently decided not to pursue the second part of its regulatory program" (emphasis added). 49 Fed. Reg. 2450 at 2452. Of particular relevance, the Agency went on to explain why it had opted not to proceed with an abatement requirement. The stated reason was that "EPA felt that a strong technical assistance and compliance program, an emphasis on public education and awareness, and a mandatory inspection rule would ensure that public health was protected." (Emphasis added.)

Taking that explanation at face value, nothing could be more clear than that in the absence of an abatement requirement public health has not been protected. In this connection, EPA is in a unique position effectively to remedy this situation by exercising its rulemaking authority in the manner we have urged. Indeed, we do not understand that there is even one party that would seriously contend that asbestos in the schools does not pose a critical health problem which should be eliminated expeditiously. That principle is subscribed to by representatives of all the affected employees -- the NEA and the entire coalition of labor organizations whose members are exposed to friable asbestos while working in the schools. That principle is subscribed to by the National School Board Association (NSBA) whose 95,000 members represent all public school districts in the U.S.[16] And that principle is subscribed to by a multitude of local parent teacher associations which in recent years have become increasingly outspoken, expressing their outrage over the incurable diseases that students can contract from asbestos exposure and proclaiming the need for prompt abatement. (We expect that representatives of all those organizations will make presentations in this proceeding as well.)

In urging EPA to promulgate a rule requiring abatement of the hazard by cessation of further exposure as quickly as possible, NEA has chosen its words carefully. We understand, from a survey of the relevant literature and discussions with experts in the field, that removal of asbestos -- while the only *permanent* solution currently known to exist -- is not the only method capable of achieving abatement.[17] We also recognize that in certain circumstances *temporary* containment by enclosing the friable materials may be an appropriate abatement method, albeit by definition not a permanent solution.[18] The selection of appropriate abatement methods is a highly technical subject, concerning which NEA does not purport to have any independent expertise. We can appreciate, moreover, that in the final analysis the method or methods chosen to end further student and employee exposure to friable asbestos will be made on a school-by-school basis, or more aptly on an area-by-area or room-by-room basis within a particular school. Inevitably, this will entail *ad hoc* judgments by individuals or firms after they have observed the hazardous condition. We have no quarrel with this practical reality.

However, the need for some flexibility in selecting methods of compliance must not detract from the overriding need for EPA to promulgate a rule requiring abatement by ending exposure to friable asbestos as quickly as possible. To achieve that objective, NEA recommends that the identification provision of the existing rule (described at p. 8, *supra*) be modified and supplemented to impose upon the school districts three additional interrelated obligations:

(1) an obligation to utilize the services of certified individuals and laboratories to determine if any friable asbestos is present, and, if so, (2) an obligation to have certified (licensed) firms take appropriate steps to eliminate the hazard after obtaining EPA approval of the abatement methods to be used; and (3) an obligation to make periodic follow-up inspections to insure that no hazard is present.[19]

It is one thing to write a rule; it is quite another to achieve compliance with that rule. Thus, a mandatory abatement rule alone cannot guarantee an end of the asbestos problem in the public schools unless it is effectively enforced. In this regard, we believe EPA must acquire an inspection force large enough to serve as a meaningful deterrent to those schools that might otherwise opt to ignore their abatement obligations. EPA currently possesses only a bare bones complement of inspectors. An immediate major increase in qualified EPA inspectors is, therefore, an essential ingredient in any asbestos abatement program.

We recognize that, even with a mandatory rule and sufficient staffing, ancillary problems will have to be confronted. For example, to the extent that abatement is to be accomplished through removal of friable asbestos, adequate safeguards must be taken. Otherwise, as noted, the removal procedure itself can create independent risks to the health of the contractor's employees performing the removal and, as well, will substantially increase -- at least for a short time -- the amount of asbestos fibers inhaled by students, teachers and maintenance personnel. To illustrate this point, we need only recall the testimony of a witness at the April 27, 1983 House Oversight Hearing on Asbestos Hazards in Elementary and Secondary Schools. She described the so-called asbestos "abatement" efforts that took place in a school in the Jacksboro, Tennessee school district. Asbestos fibers were released into the atmosphere in a classroom filled with children, first when maintenance workers ripped asbestos insulation from pipes and then when the asbestos-containing insulation material was disposed of in an open trash can.[20]

Although these and other situations involving recklessly irresponsible conduct are unfortunate, removal need not necessarily result in subjecting contractors, their employees and/or students and school personnel to higher levels of exposure than existed before removal took place. That result can be avoided if the agency promulgates a rule that provides for a system of adequate safeguards and takes steps to assure compliance with those provisions.[21]

Whatever technical problems exist with respect to the abatement process, we are confident they can be overcome. They must be overcome. Unless they are, the effects of asbestos fibers inevitably will continue to take their toll on the employees and students in the schools.

In the attached Appendix we have set forth NEA's recommendations as to the provisions that should be incorporated into an overall mandatory abatement rule.[22] After your staff has had an opportunity to review these recommendations, NEA would be pleased to participate in any further discussions that you desire. Indeed, NEA is prepared to lend its assistance in any manner you request that will advance the objective of EPA's promulgating and implementing a meaningful rule requiring the expeditious abatement of the hazard by ending exposure to friable asbestos in the schools.

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[1] We note that the petition filed by the Service Employees International Union requests EPA to promulgate a rule requiring inspection and abatement of friable asbestos-containing materials in public buildings other than schools and commercial buildings as well. NEA wholeheartedly supports that request. However, the fact is that asbestos in the schools presents a discrete problem, that it has been treated as such under the Asbestos School Hazard Detection and Control Act of 1980 (20 U.S.C. § 3601-11 et seq), and that substantial health and abatement-related information and data have been gathered by the EPA over the past several years relating specifically to schools. This is not true vis-a-vis the asbestos problem in all public and commerical buildings. A rulemaking addressing all such buildings inevitably will implicate a much wider range of more complex and technical problems necessitating substantial input through written submissions and public hearings. On balance, therefore, NEA believes that in the interest of efficiency this particular rulemaking should proceed in two stages -- first, rulemaking addressed to schools alone; and the second, rulemaking for other public buildings and all commercial buildings.

[2] In this submission we focus on the public schools. However, we intend our comments to apply to private schools as well. Indeed, to the extent that NEA's request of EPA is to impose certain abatement requirements upon public schools, it is our understanding that those requirements can, with minor modifications, likewise be made applicable to private schools.

[3] For example, a report filed in 1982 by school officials of Baltimore, Maryland, claimed that all the asbestos health hazards in the city's schools had been abated. However, a recent inspection conducted by the White Lung Association at several of those schools established that friable asbestos-containing materials are still present there.

[4] Parenthetically, we note that Dr. Selikoff is serving as an unpaid consultant to the NEA in this proceeding and will be filing a statement with EPA.

[5] Statement to be submitted in conjunction with his appearance at public meeting.

[6] Five years later, in 1978, EPA extended the prohibition to include all uses of sprayed-on asbestos.

[7] It is likewise for this reason that air sampling during a benign period is of little value. As one study put it: "The value of air sampling in the evaluation of asbestos hazards in buildings is usually negligible, and at least overrated. If asbestos content has been documented, an exposed accessible friable surface is nearly always enough evidence [of the hazard] by itself. . . . Air sampling can not only be misinterpreted, but misused. In a ploy known as 'The OSHA 2-step' the OSHA limit of 2.0 fibers per cm^3 has been used as a critical factor in decisions on abatement. Air samples obtained under quiet conditions will never exceed 2.0 f/cm^3. Then, though OSHA limits are not applicable to school populations, and the testing is incorrect, it is declared that no hazard to the population exists, and no action is required." Asbestos Abatement in Schools: Observations and Experiences, Sawyer & Swoszowski, Yale Univ. School of Medicine, 1979 Annals of New York Academy of Sciences 765, 768.

[8] Asbestosis (or pulmonary fibrosis) is a non-malignant disease that produces a diffuse degeneration of the tissues of the lung, resulting in scarring. Its outward manifestations include, for example, shortness of breath, coughing, and clubbing of the fingers. It is a progressive disease and those affected with it become increasingly debilitated and unable to carry out normal functions.

[9] Mesothelioma is an irreversible, fatal cancer that spreads over the surface of the lungs or the stomach lining.

[10] Children, as a rule, are more active and have higher rates of air exchange and metabolism than adults; consequently, they breathe more air per unit of body weight. In addition, since their activities often cause them to breathe through their mouths, children miss the body's normal nasal filtering capacity and tend to inhale greater quantities of asbestos fibers. See Attorney General's Asbestos Liability Report to the Congress, 97th Cong., 1st Sess. (1981) at pp. 55-56.

[11] See 129 American Review of Respiratory Disease (Apr. 1984), at A 174, for an abstract of this study.

[12] The rule covers 37,000 LEAs encompassing 121,600 schools (public, Catholic, and non-parochial private schools) with over 50 million students.

[13] Based upon his experiences, Dwight E. Brown, a former EPA Regional Asbestos Coordinator for Region IV, which covers the eight southeastern states, recently offered this explanation of why such notification has not taken place:

> . . . school officials [in my region] are absolutely intimidated by the function of notifying parents of the hazard . . .

(Testimony before Subcommittee on Elementary, Secondary and Vocational Education of the House Committee on Education and Labor at p. 50 (April 27, 1983)).

[14] To make matters worse, many of the original inspections undoubtedly were conducted by persons lacking the skills to competently assess whether friable asbestos was present and, if so, how to abate the hazard.

[15] See our discussion of the inadequacies of encapsulation generally at n. 18, infra.

[16] Just last month in testifying before the Congress, the NSBA acknowledged that "[t]he reality today is that asbestos in our public schools is a national problem of staggering dimensions . . . [T]oo many of the [94,000 public school] buildings may be creating a health hazard for millions of pupils . . ." (Statement on Reauthorization of the Asbestos School Hazard Detection and Control Act of 1980 Before the House Subcommittee on Elementary, Secondary and Vocational Education, House Committee on Labor and Education, at pp. 2, 5).

It should also be noted that in recent months numerous school districts throughout the country have initiated lawsuits against the manufacturers and suppliers of the asbestos-containing materials which were placed in their respective schools. The main object of those lawsuits is to obtain payment in an amount that will at least cover the costs actually incurred or to be incurred by the school districts in abating their asbestos hazards. More important for purposes of this rulemaking, what underlies these lawsuits is the school districts' recognition that the continued presence of friable asbestos poses an unacceptable health risk to the students and employees exposed in the schools. (A survey of some of the cases pending in fourteen (14) states is contained in the Asbestos Litigation Reporter, March 2, 1984 at 7936.) The first case, Lexington, S. Car., Sch. Dist. #5 v. U.S. Gypsum, recently resulted in an out of court settlement of $675,000. Wall Street Journal, April 16, 1984.

[17] In fact, we understand that there may be certain limited circumstances in which removal itself may create a separate source of dangerously high levels of exposure, thereby increasing the hazard instead of eliminating it. At pp. 16-17, infra, we explain why this is not an insurmountable problem.

[18] Another known control technique is encapsulation, i.e., spraying or coating a sealant on the asbestos. However, according to Dr. William Nicholson of Mt. Sinai, a highly respected authority, the health risks that remain after encapsulation are so severe as to render illusory even the interim protection it purports to provide. We would therefore urge the agency to proscribe its use under any circumstances as a method of control. Cf. Sawyer and Swoszowski: "Encapsulation in the schools should be limited to areas where contact damage will not occur. In many schools this may preclude the use of sealants." 1979 Annals of New York Academy of Sciences, supra n. 7 at 766.

[19] The experience of the Madison, Wisconsin School District illustrates the need for certification and reinspection. All the schools in the district were inspected and where friable asbestos was found, either it was sealed with sprayed-on materials or else false ceilings were constructed to shield occupants from exposure. By 1981, abatement efforts were completed and the district was confident that no problem existed. During the past year, however, an investigation revealed that in one school the abatement had been improperly performed in that some ceiling tiles, intended to cover the asbestos, were missing. Unfortunately, the site of the missing tiles was next to air vents, with the result that asbestos fibers were jetted out into classrooms. Abatement efforts had likewise prove ineffective in at least five other schools which, upon further investigation, were found to have dangerously high levels of airborne asbestos. Madison had, in good faith, undertaken to achieve abatement in all its schools. Had the inspection and abatement been conducted by certified personnel or had a reinspection been conducted, numerous existing health problems undoubtedly would have been prevented.

[20] Testimony of Willa Newport before Subcommittee on Elementary, Secondary and Vocational Education of the House Committee on Education and Labor at p. 8 (April 27, 1983). See also Knoxville Journal, Friday March 4, 1983 at p. D 2.

[21] In this connection, it is our understanding that a New York City Schools Asbestos Task Force has had considerable success in structuring and then implementing a program designed to assure that only certified contractors -- i.e., those knowledgeable in the safe removal of asbestos -- perform this method of abatement. We urge the EPA to invite a representative of the task force to submit for the instant record a statement describing its program.

[22] Of course, we reserve the right to supplement or modify those recommendations based upon the information acquired during this proceeding.

APPENDIX

Set forth below are NEA's recommendations as to the essential elements that a comprehensive modification of or supplement to EPA's existing rule should contain. These recommendations are designed to eliminate exposure to friable asbestos in the schools as soon as possible. They reflect NEA's present thinking based upon an analysis of the experiences to date of EPA and other governmental agencies, a survey of the pertinent literature, and discussions with medical and technical experts.

ABATEMENT PROGRAM

Introduction

As explained in the accompanying text, the core provision of the rule should be a requirement that each school district abate the existing health hazard by ending exposure to friable asbestos as soon as possible. To this end, the rule should emphasize that properly conducted removal of friable asbestos -- at present the only known permanent solution -- is the generally preferred method of abatement, but that certain temporary methods -- including enclosure[1] -- may also satisfy the abatement requirement in circumstances where recommended by a certified individual or contracting firm and approved by the EPA before being implemented. The elements of a rule embodying these concepts are set forth below.

1. Identification. Within ninety (90) days of the effective date of this supplemental rule every school district shall submit to the appropriate EPA Regional Office a sworn affidavit setting forth the date or dates that each of the schools within

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[1] Encapsulation should not be considered an acceptable temporary solution. See our discussion in the text at p. 14, n. 18.

that district was inspected by a qualified person[2] for purposes of identifying the presence of friable materials, and attesting to whether any such friable materials were found and, if so, where they were located. Three years from the date that the initial sworn affidavit is filed in compliance with the foregoing provision, and continuing every three years thereafter, each school district shall be obligated to file an updated sworn affidavit to assure that the identification process continues in each school on a periodic basis. The school district shall provide copies of all such sworn affidavits to each labor organization that represents its employees and to the PTAs at each school involved. Any person who willfully misstates in his sworn affidavit the results of his inspection activities shall be subject to a $25,000 fine and shall lose his/her qualified status for purposes of this rule.

2. Analysis. Any time that the presence of friable materials is detected, sampling and analysis shall be performed promptly to determine if they contain asbestos. That sampling and analysis shall be conducted by laboratories certified by the EPA as qualified to perform that work. The EPA shall issue criteria for obtaining certification.

3. Abatement Action and Notification. (a) Once a laboratory determines that friable asbestos-containing materials are present, it shall notify the EPA Regional Office and the school district in writing. The school district shall then promptly send copies of the laboratory report to each labor organization that represents its employees, and to the PTA at the school

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[2] The EPA shall certify as qualified only those persons who by virtue of their professions (industrial hygienists, engineers and/or architects) or other specialized training have demonstrated that they are competent to perform identification functions.

involved. (b) The school districts then shall be required promptly to utilize the services of a certified individual(s) or firm which shall take steps to abate the hazard by using methods approved in advance by the EPA. (c) After abatement is completed, the individual(s) or firm involved shall then notify the EPA Regional Office and the school district in writing. (d) The EPA Regional Office then shall inspect the premises, verify that abatement has occurred, and send notices of its verification to the school district. The school district promptly shall send copies of the verification notice to each labor organization and the PTA involved. If the EPA determines that abatement has not occurred, it shall promptly advise the school district of what remains to be done, and establish a deadline for the completion of that work. A copy of that notice shall be sent by the school district to each labor organization and the PTA involved. When abatement has been accomplished, the verification process shall be followed as set forth above.

4. Certification to Perform Abatement Work. The EPA shall establish the criteria that will be applied in determining whether an individual or firm shall be certified (licensed) to perform abatement work. The criteria shall apply to all persons seeking to be certified. The criteria shall be disseminated through Federal Register notice as soon as possible after this supplemental rule is promulgated, but no more than sixty (60) days after its effective date. The criteria shall include, but not be limited to:

> a description of the training that must be provided concerning asbestos hazard identification, safe work practices in the handling of asbestos, the use of respirators, personal hygiene practices and emergency procedures;
>
> a description of the training that must be provided with respect to collection and disposal techniques;
>
> a description of the training to be provided to enable individuals to comprehend contract

specifications designed to assure safe performance;

the written examination that shall be administered to insure that the training has been adequately absorbed;

the procedure that shall be used for identifying all workers who have taken such training;

and a system for rescinding certification if a contractor or other individual engages in practices that do not adequately safeguard his workers or the students and school personnel.

5. Complaint Procedure. Upon a written complaint by a labor organization representing the employees in a school district, or by the PTA in any school district, the EPA Regional Office -- upon determining that an inspection is warranted -- shall inspect promptly the school in question for purposes of ascertaining whether any asbestos hazard is present. If a hazard is found to exist, the EPA Regional Office shall meet with the school district, establish an abatement date, approve the abatement methods to be used by the school district, and then verify that abatement has been completed. At each step in this process the EPA shall notify the complaining party in writing of the EPA's actions.

6. Spot-check Inspections. The EPA Regional Office shall periodically spot-check a representative number of the schools within its jurisdiction for abestos hazards. At the conclusion of any such spot check, a written report of the EPA's findings shall be sent to all affected parties, including the school district, any labor organization representing its employees, and the appropriate PTAs. To the extent any hazards are found, the abatement procedure set forth in paragraph 3 above shall be implemented.

7. Recordkeeping. The EPA Regional Offices and the School districts shall maintain for no less than five years all of the records (reports, correspondence, etc.) received as a result of any of the requirements of this rule. Those records

shall be made available to the public, upon request, at reasonable times and places.

8. Warning Signs. During the period between the time when friable asbestos-containing material has been found to be present and when that hazard has been abated, adequate warning signs shall be posted. For example:

> ATTENTION: Maintenance Personnel
>
> This Ceiling Contains Asbestos.
>
> Do Not Touch Until Appropriate Instructions Have Been Received From the Building Superintendent.

As we have explained in the accompanying text, a mandatory abatement rule alone cannot eliminate the asbestos hazard in the schools. An effective enforcement program is also needed. To this end, EPA must substantially increase its staff to assure sufficient qualified personnel for the proper administration, enforcement and implementation of all aspects of the existing rule and the supplemental provisions as recommended above.

Further, while EPA must await the outcome of the instant rulemaking to implement the changes to the existing rule that we have recommended in paragraphs 1-8 above, there are numerous long-overdue administrative actions the EPA can initiate immediately. Dr. Irving J. Selikoff, NEA's consultant, has already provided the EPA with a comprehensive list of proposed administrative actions and he will discuss them in his testimony at the May 7th hearing. At this point we merely wish to identify, for illustrative purposes, a few of the most significant actions that should be taken:

1. Development of a maintenance manual for school superintendents concerning the asbestos hazard and immediate dissemination to all school districts of that and other EPA manuals dealing with asbestos exposure in the schools; and
2. training courses for maintenance personnel and teachers concerning safe work practices when working with or near asbestos.

RESPONSE OF JOHN F. WELCH, PRESIDENT, SAFE BUILDINGS ALLIANCE, TO QUESTION SUBMITTED BY SENATOR D'AMATO

AIR MONITORING FOR ASBESTOS

Question: It is my understanding that EPA claims that air monitoring is not a valid means of assessing asbestos exposures in schools. What is the Alliance's response to this assertion?

Answer: As all the expert groups who have reviewed the issue have concluded, the presence of asbestos-containing products in most buildings will not pose significant risk. Regulatory standards and guidelines are thus needed to distinguish those situations where asbestos-containing materials may pose significant risks from the more common situations where major asbestos abatement is warranted. The best way to determine which buildings may pose significant risks is through definition of an exposure action level below which significant risk does not exist and monitoring of asbestos levels to determine where the action level is exceeded. An airborne exposure standard is the most relevant criterion for assessing buildings, has been proposed or implemented by a number of experts, and can adequately address concerns about asbestos in buildings.

Risk is posed by presence of airborne asbestos -- not by presence of asbestos-containing materials. It is for this reason that the various reviewing bodies in Ontario, the United Kingdom and New Jersey have all focused their attention -- not on the mere presence of asbestos-containing materials -- but rather, on the airborne exposure levels found in buildings with such products. It is axiomatic that exposure levels need to be known if limited resources are to be focused on the conditions most worthy of attention. As the Ontario Royal Commission found: "[A] major cause of public apprehension must be attributed to the failure of government agencies involved in asbestos regulation to communicate clearly with respect to the all-important factor of measured levels of asbestos in building air." (Royal Commission, at 13.)

As the General Accounting Office's Asbestos Control Management Document notes in requiring that air monitoring be conducted before abatement activities are begun:

> Results of air sampling serve two purposes. First, they establish the degree of actual hazard present in building areas by determining the airborne concentrations of asbestos fibers that are present in the breathing zones of employees and/or the public occupying those areas. Air samples obtained at this stage also serve to establish the "background" concentrations of asbestos in the air prior to abatement (*i.e.*, removal, encapsulation) thereby providing a yardstick by which to measure contractor performance.

(GAO, "Asbestos Control Management Document" 19-20 (1984).)

EPA's fears that airborne monitoring will not provide an accurate picture of asbestos risks are undocumented. Numerous building exposure studies have been conducted throughout the world. These studies have monitored buildings of many different ages, and with materials representing many different conditions. None of the expert reviewing panels in Ontario, New Jersey or the United Kingdom have found the study results too inaccurate to support conclusions that in most buildings exposures are too low to pose significant risks.

Representative sampling is commonly used for many types of environmental control. Contaminant concentrations in water, for example, vary over time, but experts in environmental control have devised schemes to assure that representative monitoring will provide an accurate picture and assure that the water can safely be consumed. See, e.g., Safe Drinking Water Act contaminant monitoring requirements, 40 C.F.R. §§ 141.23, 141.26, 141.30.

Accepted principles of representative sampling can also be employed in assessing buildings with asbestos-containing materials. Sampling is typically performed for an entire day or even several days when the building is in active use. Any variations in exposure levels due to activity in the building will thus be detected. If concern exists that certain activities may increase fiber release, e.g., basketball games or rock concerts, samples can be collected while such events are occurring.

It may be possible -- although it has never been documented -- that occasional events such as a basketball hitting the ceiling contribute significantly to human exposures. Such events however either occur frequently enough that they will be monitored during day-long or longer sampling periods, or, if infrequent, are quite unlikely to contribute measurably to the long-term average exposures which are of concern.

STATEMENT OF SENATOR MACK MATTINGLY OF GEORGIA

Mr. Chairman, I appreciate this opportunity to submit my statement in the record for the HUD & Independent Agencies Appropriations Subcommittee.

I am testifying in support of a research project that has obvious benefits for the environment along with agriculture, and consequently believe that the Federal Environmental Protection Agency should consider getting involved in this research along with the U.S. Department of Agriculture.

I am submitting a request of $200,000 funding to expand the Heliothis research project that GTE Laboratories is conducting in the FY '86 Agriculture Appropriations bill and would like to have EPA fund a portion of that amount working jointly with USDA.

GTE Laboratories has an innovative new approach for developing environmentally sound pest control systems through the study of insect photoecology which focuses on how photosensitivity, primarily vision, regulates insect behavior, growth, and development. Their approach centers upon basic research into photoreception by selected insect pests. From this basic understanding, approaches to control can be developed which address select windows of vulnerability in each insect's photoecology.

GTE is in a unique position to explore this research. Sylvania, GTE's lighting division provides GTE with the latest lighting technology making it possible for biologists to have custom lighting designed for their research. Since 1982, the Laboratories has developed and refined its research approach. This effort has resulted in a potential commercial method of controlling a key pest of California almonds, the navel orangeworm (N.O.W.). The success of preliminary field experiments of 1983 and 1984 generated considerable enthusiasm among grower cooperators resulting in greatly increased field research efforts for 1985.

Their results showed that the percentage damage in the almond trees under three conditions was as follows: the biocontrol plot was 14.7%, the chemical plot was 15.8%, and the light control plot only experienced 2.8% damage. The gross profits from the three experimental plots was calculated, and in all cases the use of lighting was cost-effective in the first year. Moreover, a profit was shown. They estimate that the approximate annual cost of installing and maintaining a light system is around $90/acre vs $220/acre for the same plot under chemical control.

GTE intends to expand their developed research approach to include representative key pest species from a variety of agricultural environments. Preliminary research on the Heliothis complex suggests that many nocturnal behaviors of moths are affected by ambient light and that the potential exists for developing a new, non-toxic, approach to control. Cotton producing areas of the Southern states have a key pest complex composed of four insect species: the boll weevil (Anthomomus grandis), plant bugs (primarily Lygus lineolaris), the bollworm (Heliothis zea), and the tobacco budworm (Heliothis virescens).

Cotton requires more insecticide than any other major crop produced in this country and accounts for nearly 50% of the nation's pesticide application at an annual cost of millions to farmers.

HELIOTHIS is difficult to control with pesticides because of its ability to rapidly develop populations resistant to toxicants. Recently resistance was demonstrated to the latest generation of chemical compounds, the synthetic Pyrethroids, the preferred compound for cotton pest control.

Groundwater contamination and toxic waste disposal are some of the nation's major environmental concerns. Heavy useage of toxic chemicals in pesticide management of our agriculture crops raises the policy issue -- should EPA become involved in research on non-toxic pest management? I believe the answer is yes, and I request their involvement in this necessary research. Most Americans would agree that the less we depend upon toxic compounds as solutions to our agricultural problems, the better, particularly in light of all the recent controversies around toxic waste contamination and disposal. This research leads the way for less dependence on toxic compounds.

Japan is ahead of us in the application of light for controlling crop pests. They currently control night flying fruit piercing moths by flooding their orchards with light. However, they do not employ the scientific approach that GTE proposes. With the application of specifically timed lights of known spectral quality, they can alter the photochemistry of the moths' compound eyes and temporarily blind the moths, thus, interfering with the normal conduct of activities of mating and oviposition.

The Heliothis research has continued to date with no federal support at GTE Laboratories. However, this research is a small part of GTE's mainstream research efforts, and expansion of their efforts beyond the model systems is inconsistent with future corporate objectives. I feel this research is important, and I am seeking federal support on a matching basis to expand their effort.

The GTE proposal repesents basic, long range, high risk research that most private businesses today cannot either afford or justify doing exclusively with our own resources. Yet, such high risk research can be justified on both an economic and academic basis if the results can have a large, positive impact on both agriculture and the environment.

The Laboratories estimates that this basic research will require intensive field experiments in areas of high natural Heliothis infestations. A suitable site for field research is planned for Georgia in cotton. GTE will provide field project management and direction from staff scientists and personnel in addition to facilities for the required laboratory investigations. The Coastal Plain Experiment Station in Tifton, GA. will provide field sites, nearby laboratory facilities, research materials, and on-site supervisory and technical personnel. GTE funding is only available for preliminary investigations. A GTE Work Schedule for 1985 has already been established for efforts in Tifton, GA (Exhibit I). A more expanded program of work will be adopted and other field experiments included if they receive FY '86 funding.

If we can control insects through less dependence on toxic chemicals in a cost-effective manner, it will provide a major new breakthrough for agriculture and the environment.

Mr. Chairman, I urge you to consider partial funding of this project from the EPA discretionary funds. I believe it is in the nation's best interest for EPA and USDA to work together in funding this project.

HELIOTHIS FIELD RESEARCH FOR 1985

GEORGIA:

CONTACT PERSON: Dr. Gary Herzog, Coastal Plain Experiment Station in Tifton, GA. (912) 386-3374.

MILESTONES TO COMPLETE:

1. FIELD INSTALLATIONS: Install an HID lamp with a green filter. Install reflective barriers at canope height every 30ft from the light on one side. No filter and no barriers on second side.

A. EQUIPMENT DESCRIPTIONS:

1. HID lighting system: A pole with two HID fixtures will be erected in the center of the field with one lamp facing East and one facing West. The lamp facing West will be equiped with a yellow-green filter. The one facing East will have no filter. The pole will extend above the ground such that the lamps will be ajustable at the 10 to 15 ft. level. Lamps will face outward such that light is thrown from 10' to 150' from the pole.

2. Barriers: Barriers will be erected at 30' intervals from the West facing light pole. They will be constructed of reflective material set at an angle to the light which will allow most of their reflective surface to receive maximum illumination. If constructed of fabric, there will be periodic slashes to enable air to circulate through without moving or tearing the structures.

   a. Suggested fabrics: Silvered mulch (stored in Florida), white heavy sail quality polyester, or painted plywood structures.

B. FIELD DESCRIPTION:

Layout of planting: Cotton to be planted in North-South rows in field at least 300'wide and 300'deep. Can be a corner of a field so planted rather than an isolated block. To facilitate barrier installation, a vacant row should be left at approximately 30' intervals on the West side. Pad for pole to be located in very center of block.

Locations: Field should be close to electrical source for power for the light system. Also a secure area should be selected. To avoid complaints from neighbors, a row of trees should stand between the lighted area and any houses.

2. BEHAVIOR STUDIES AND MONITORING: Damage to bolls and number of eggs and larva on plant should be checked for the East, West, and Control every three weeks through the season. This can be done by a person at the site. Studies of adult reaction to the lighted areas and barriers to be conducted at two times (late July and mid September 4) by GTE personnel.

A. BEHAVIOR STUDIES:

1. Study the reactions of adults to various environments by observing their behavior in the three field areas.

2. Study the reactions of the larvae by noting their age (size measurement) and position on the plant at random points through the block.

3. Record the pattern of egg deposition by searching plants for eggs at intervals of distance from light source.

4. Measure intensity of light at distances from source and at surface of each barrier.

B. MONITORING:

1. Check ten random plants in each area between barriers or at 30'(East side and control) for presence of eggs and larvae. Note plant part on which they are found and height on plant.

2. Periodically make a visual observation, walking through each block, of the total number of Heliothis adults flying during a 10 min period.

3. BIOASSAYS: In the field, study spectral affects of light on dispersial and orientation behavior.

A. AFFECT ON ADULT WITHIN FIELD DISPERSIAL AND MATING: Expand the technique developed and used in Arizona last fall to include lamps that represent more of the insect's visual spectrum.

B. LARVAL ORIENTATION: Use small lamps at night to determine if migrating and feeding larvae are detered by the lights.

LABORATORY STUDIES ON COTTON PESTS THAT COMPLEMENT FIELD WORK

MILESTONES:

1. VISUAL SYSTEMS INVESTIGATIONS: With G. Bernard, continue the study of Heliothis visual sensitivity on adults reared from field collected larvae. Characterize the visual sensitivity of H.zea adults, the armyworm moth (Spodoptera), and the pink bollworm moth.

A. COLLECTION AND REARING: To be conducted at Tifton with adults sent to Yale.

1. Pink bollworm may come from California or Arizona.

2. LABORATORY BIOASSAYS: Study attraction of adults to spectral regions of light at eclosion and maturity. Monitor egg laying of laboratory reared insects under different photo environments.

CALENDAR:

TRIP 1: Approximately May 1. Visit site in Georgia to meet with Herzog and discuss plans. Layout plots. Continue on to Florida and arrange for shipment of HID fixtures to Georgia.

TRIP 2: Approximately June 1. Visit site and set up lamp and barriers. Do initial monitoring.

TRIP 3: Approximately July 20. Conduct behavior studies and bioassays.

TRIP 4: Approximately September 15. Conduct behavior studies and bioassays. Arrange to dismantle and store equipment.

STATEMENT OF SENATOR PETE WILSON OF CALIFORNIA

Mr. Chairman and members of this subcommittee, thank you very much for the opportunity to testify before you today on our need for further assistance to resolve the problem of Tijuana sewage flowing into the United States.

Last year you allowed me to present the problem San Diego faces because of this health hazard. The result of this sewage flow has been the frequent quarantine of beaches in the San Diego area and the threat that these contaminates will make the beaches unusable for my constituents.

During our discussions last year you asked the city of San Diego to describe specifically how a solution for resolving this problem might be found. They responded that an international treatment plant should be constructed to prevent this pollution of the river and beaches. In last year's EPA appropriation this committee provided an immediate appropriation of $5 million to initiate planning and engineering for such a system and authorized an additional $27 million for its eventual construction.

Over the past year the State Department, the International Boundary Water Commission, the Environmental Protection Agency, and the city have determined exactly what type of system should be constructed and who should manage and operate it.

I believe a defensive system should be constructed which would be activated should the Mexico treatment facilities break down or are proven to be inadequate. This collection and pumping system can be constructed for approximately $37 million.This means that the state of California will provide $5.3 million for a surface collection system while the federal government provides $32 million authorized by this committee last year for the second phase of this defensive system.

What are the possible problems that we face? The most serious is the possibility of Mexico not meeting its obligation to build its own treatment plant. The second problem is that the presently planned Mexican treatment capacity may be adequate until only 1989. If there is inadequate action by the Mexican government there may be a need to construct a treatment plant in the Tijuana River area. If this is the case, the city and the State Department will have to sit down and determine a method for financing such a plan which would include payment by IBWC or Mexico for sewage treatment. I do not contemplate this occurring, but I want to alert the committee to this possibility.

I believe that the city has responded to your urging that a solid strategy for solving this problem be developed. I request that your committee provide $27 million in this year's appropriation bill so that we can finally begin to solve this problem.

LETTER FROM SAMUEL R. PIERCE, JR., SECRETARY OF HOUSING AND URBAN DEVELOPMENT

June 13, 1985

REC

Honorable Jake Garn
Chairman, Subcommittee on
HUD-Independent Agencies
Committee on Appropriations
United States Senate
Washington, D.C. 20510

Dear Senator Garn:

It has come to my attention that a representative of the National Association of Realtors testified on May 2, 1985 before your Subcommittee on the Administration's proposed Fair Housing Initiatives Program (FHIP).

I have reviewed the written testimony which was presented on that occasion and have found that it is, in large part, based on a misunderstanding of what the Fair Housing Initiatives Program would actually do. In an effort to clarify our intentions, I am enclosing comments on FHIP which I request that you either make part of the hearing record or distribute to each member of the Subcommittee.

HUD and the Administration are convinced that FHIP will significantly augment the ability of Federal, state and local governments and responsible private organizations to eliminate housing discrimination through a variety of activities of proven effectiveness and legality. I strongly urge the Subcommittee to grant our request for FHIP funding.

If I can provide you with any further information on this subject, please do not hesitate to let me know.

Very sincerely yours,

Sam

Samuel R. Pierce, Jr.

Enclosure

May 13, 1985

HUD'S PROPOSED FY '85 FAIR HOUSING INITIATIVES PROGRAM

A RESPONSE TO CONCERNS OF THE NATIONAL ASSOCIATION OF REALTORS

In recent testimony before Senate and House Committees, representatives of the National Association of Realtors (NAR) have indicated concerns about HUD's proposed Fair Housing Initiatives Program (FHIP). Following is a statement about the purpose and funding levels for FHIP. This is followed by a statement of NAR's concerns and HUD's assessment of these issues.

Purpose of the Fair Housing Initiatives Program (FHIP)

Recent evidence indicates that housing discrimination remains a virulent but increasingly sophisticated feature of American housing markets. The elimination of discrimination requires strengthening and coordinating all fair housing enforcement and compliance agencies -- public and private. FHIP is designed to provide the resources and flexibility needed to eliminate all forms of discrimination by funding a variety of public and private, grass-roots organizations.

There are three sub-components of FHIP for which $10 million is requested:

1. The Administrative Enforcement Initiative will provide $3 million in funding to substantially equivalent State and local fair housing enforcement agencies. This replaces competitive funding currently provided under the existing Fair Housing Assistance Program (FHAP).

2. The Education and Outreach Initiative will provide $3 million in funding to public and private entities to conduct education or outreach programs to the general public and to housing industry groups. This is a continuation and expansion of education and outreach support currently provided on a limited basis through the Community Housing Resource Boards Program.

3. The Private Enforcement Initiative will provide $4 million in funding to nonprofit organizations or other private entities to conduct a variety of activities in support of fair housing enforcement through appropriate judicial or administrative proceedings, including investigations and testing.

NAR Objections

NAR's testimony in opposition to enactment of the FHIP legislation rests on three arguments:

1. NAR is opposed to what it sees as "HUD's effort through this Program to 'privatize' fair housing law enforcement." NAR characterizes the program, particularly the Private Enforcement Initiative, as "a gross and irresponsible delegation of enforcement responsibility to private groups and communities which have neither the competence nor the objectivity required to properly and fairly enforce the law."

2. NAR "is not opposed to testing but it is vigorously opposed to the unsupervised, unstandardized, subjective, and arbitrary testing program which HUD proposes this Congress finance."

3. NAR claims that there is a "fundamental dispute as to what 'fair housing' means" and that testing suppobrted by the FHIP program will be utilized by different groups to coerce conduct in accordance with contradictory standards.

HUD Assessment

1. The role of private fair housing groups and of "testers" in pursuing the enforcement of fair housing rights by private action under the Fair Housing Act has been recognized by the Supreme Court in the *Gladstone Realtors* and *Havens* decisions. (Both rulings were opposed in *amicus* briefs filed by NAR.) More fundamentally, it is simply not true that, as NAR argues, Congress has assigned fair housing investigation and enforcement responsibilities exclusively, or even primarily, to governmental agencies. A prime source of civil rights progress in this nation has been, not government initiative, but the active pursuit of Constitutional and statutory rights through the judicial process - by private plaintiffs. That expectation has been built into the Fair Housing Act itself by Congress by conscious design. The United States Supreme Court has said:

> "Since HUD has no enforcement powers and since the enormity of the task of assuring fair housing makes the role of the Attorney General in the matter minimal, the main generating force must be private suits in which . . . the complainants act not only on their own behalf, but also as private attorneys general in vindicating a policy that Congress considered to be of the highest priority." *Trafficante v. Metropolitan Life Insurance Co.*, 409 U.S. 205, 211 (1972).

The Private Enforcement Initiative component of the FHIP proposal will assist "private attorneys general" in realizing the role assigned to them by Congress under the Act. It does not authorize private groups to institute private courts or other private tribunals; it will assist them only in the utilization of established judicial or administrative proceedings.

2. "Testing" is a means of gathering evidence of differential treatment of minority and non-minority homeseekers. "Testing" is only as good as courts and juries find it. Like any other evidence, it is the courts that must determine the probative value of the evidence presented to them. Therefore, it is the success or failure rate in the courts that will dictate the evolution of standards and adherence to them.

In granting funding for proposed testing projects under FHIP, HUD will utilize years of successful experience, based on court rulings in cases brought by public as well as private plaintiffs and on State and local agency administrative findings, in the design, monitoring, and assessment of testing activities by private agencies. (In recent years, the Civil Rights Division of the Justice Department has based several Fair Housing Act "pattern and practice" complaints on testing by private fair housing groups.) Under the Private Enforcement Initiative, funding will be awarded on a competitive basis, only for testing proposals clearly designed to produce evidence sufficiently probative to sustain a judicial verdict of discrimination.

3. If there is a "fundamental dispute" anywhere regarding "what fair housing means," it does not exist within the Federal Government. Any attempt to characterize HUD's affirmative marketing requirements with racial quotas is clearly off the mark. HUD has long made it clear that mere projections of anticipated occupancy cannot under any circumstances be used as a

"quota" in the tenant selection process (see explicit instructions for Affirmative Fair Housing Marketing Plans). HUD's position to this exact effect with regard to Starrett City, for example, clearly appears in the record of the private lawsuit involving that project.

HUD's opposition to racial quotas in housing has been stated too many times to be counted. In proposing revised Fair Housing Act procedural regulations in 1984, for example, HUD stated that it "opposes activities that limit the free choice of any person, majority or minority, in selecting available housing."

In stating support of programs of some communities to which the label "integration maintenance" had been applied, Secretary Pierce explicitly differentiated those programs from quotas. In fact, he characterized such programs as efforts opposed to racial steering.

Quite apart from the fact that this "fundamental dispute" alluded to by NAR does not exist, it would be far remote from testing even if it did. Testing only identifies differential treatment of minorities and non-minorities in the homeseeking process, on the assumption that differential treatment is what the Fair Housing Act forbids. Under the hypothetical "integration maintenance" standard that NAR suggests is held by some, it would be the failure to provide differential treatment that would consitute the violation. It is difficult to imagine how a testing program could be made to support such a purpose.

The third argument mounted against the FHIP proposal by NAR, therefore, is plainly specious.

Conclusion

FHIP will promote effective coordination among Federal, State, and private organizations committed to the elimination of housing discrimination through professional, responsible, and effective activities. FHIP provides a proven, accepted enforcement tool to the agencies charged with administering fair housing law. It poses no threat or burden to citizens, including real estate professionals, committed to the goals of fair housing. HUD therefore strongly urges approval of FHIP.

STATEMENT OF GOV. MICHAEL S. DUKAKIS, CHAIRMAN, COMMITTEE ON ECONOMIC DEVELOPMENT AND TECHNOLOGICAL INNOVATION, NATIONAL GOVERNORS' ASSOCIATION

I would like to open my remarks by thanking you for permitting the National Governors' Association to submit written testimony to you on fiscal year 1986 appropriations levels for the Department of Housing and Urban Development's housing and community and economic development programs. In my statement I will address four issues which I believe are important in your deliberations:

1. the Governors' position on the federal budget,
2. the impact of the administration's 1986 budget request on state governments,
3. the Governors' position on federal housing programs, and
4. the Governors' position on community and economic development programs.

Federal Budget Position

The National Governors' Association at its recent Winter Meeting adopted a bipartisan comprehensive position on the federal budget in response to the huge federal deficit. If the deficit is not substantially reduced soon, lower economic growth over the next two decades can be anticipated. Without action, a deep and long recession or a return to high inflation or both may occur.

The NGA position on the federal budget, which is attached, calls on the Congress to hold the 1986 non-defense discretionary appropriations to their 1985 levels.

Regarding the allocation of cuts, the administration requests substantially larger cuts than the Governors' policy proposes. Furthermore, we would have to take great exception to the proposed cut in Medicaid.

Overall, we do not believe that the administration's budget shares the burden equally across defense and non-defense spending. With respect to the military, spending has already increased 61 percent between 1981 and 1985. The president is now proposing another 13 percent increase this year. It appears that some slowing of this rate of increase is appropriate to maintain the cost-effectiveness in weapons systems and other procurement. Non-defense discretionary spending has already been reduced 20 percent in real terms over the last five years, and the president is proposing huge cuts again in this area. Given that this category is the investment portion of the budget (education, economic development, research and development, etc.), we do not believe additional cuts are wise. While a freeze in nominal dollars is acceptable, we seriously question whether further cuts can be made without heavy consequences.

The Impact of the Administration's 1986 Budget on State Governments

In terms of the impact of the administration's 1986 budget on the states, NGA thinks that the most dramatic aspect of the budget is the absence of a federalism philosophy and analysis to accompany the substantial shifts that are proposed. We are discussing the most important document on the federal system that the administration will produce this year, and yet there has been no consultation with Governors in an attempt to set common priorities and goals. There is no discussion of the appropriate federal role in providing services to our citizens. There is no plan to ensure that the transition from current spending levels to the proposed spending amounts is accomplished smoothly.

With respect to the specific budget cuts that the administration has recommended, we oppose:

1. the huge reductions in aid to local governments including general revenue sharing, mass transit, housing, economic development administration, urban development action grants, community development block grants, Farmers Home Administration rural development grants, and Environmental Protection Agency construction grants;

2. the Medicaid cut and the imposition of caps on administrative costs in Aid to Families for Dependent Children, Food Stamps, and Medicaid;

3. the elimination of funding for the Work Incentive Program, the cuts in child nutrition, state energy programs, and employment and training; and

4. the large cuts in the farm programs at a time when the farm economy is facing such a difficult economic outlook.

In summary, the NGA places its priority on funding of federal programs that are targeted to low- and moderate-income people and distressed local communities.

The fiscal condition of the states does not permit Governors the luxury of substituting state funds for federal spending in these high-priority programs. While the fiscal condition of states in 1985 will be somewhat stronger than that experienced in the recent past, the surpluses currently projected are quite modest given the economic and other uncertainties facing state governments. A recent survey undertaken by the National Governors' Association and the National Association of State Budget Officers indicates that the states' ending balance for fiscal year 1985 will be approximately $5.2 billion or only 2.9 percent of spending during that year. About 50 percent of the entire surplus is in only 5 states, with 28 states having balances below 3 percent.

Housing Programs

We affirm the statement of national policy expressed in the 1949 Housing Act that all Americans be provided "a decent home and a suitable living environment." That national housing goal is as important now as it was in 1949. Those individuals with the greatest needs should be supported by a social safety net, a part of which is the availability of decent, safe, sanitary and affordable housing.

The administration's 1986 budget contends that recent increases in assistance and general budgetary stringency warrant imposing a two-year moratorium on new commitments under HUD's programs. We disagree. NGA favors Congress establishing budget authority and lending limits in 1986 at the 1985 levels. This action could add about 100,000 additional households under HUD programs. Low- and moderate-income persons are primarily renters. Despite the size of present federal housing expenditures to date, the Congressional Budget Office estimates that present rental assistance commitments are expected to be sufficient to serve only about one-third of all very-low-income renters. Federally subsidized mortgages aid only about one in ten of all low- and moderate-income homebuyers in any year. Cutbacks on federal direct expenditure rental housing programs can expect to have a disproportionate affect on the elderly who are major recipients of rental assistance. A large number of elderly people remain in or near poverty, a large share of them face housing problems, and a large number of them are rural.

I am attaching for your information the policy position on housing just adopted by NGA at its Winter Meeting. It provides detailed statements on most of the housing programs you are presently reviewing. Let me summarize three of the major points that are made by the policy position:

1. Governors are aware that some past federal housing programs have been deemed to be too costly, but Congress should not, therefore, abandon its efforts to provide adequate housing for those poor the market place shuts out of affordable shelter. Congress should experiment with new cost-efficient programs. It is for this reason that the housing development grant program and the rental rehabilitation grant program should not be jettisoned just as they are being tested. Similarly, Section 8 certificates and vouchers should continue to be made available.

2. While we provide strong support for rental subsidies to the low- and moderate-income renter, we have concluded that total reliance on a rental subsidy approach is a flawed policy. New construction of affordable housing for low- and moderate-income people is needed where rental markets are tight. Where it is possible to rehabilitate existing structures to preserve our nation's housing stock for low-income people, we support the availability of rehabilitation funds.

3. Even though the primary reason for our support of low- and moderate-income housing programs is the provision of basic shelter, we recognize that these programs have a secondary benefit. They play a role in stabilizing families, revitalizing distressed neighborhoods, and providing economic development incentives.

Community and Economic Development

At the NGA Winter Meeting, the Governors on the Committee on Economic Development and Technological Innovation endorsed the continued funding of Urban Development Action Grants (UDAG), the Community Development Block Grant (CDBG), and housing programs at the fiscal 1985 level. A copy of this resolution is attached. These programs help our economies expand and produce revenues that can close the federal deficit gap. Effective federal, state and local economic development programs are cost-effective uses of public funds. They have helped create and retain jobs in the most distressed areas of our states, regions which have not enjoyed the benefits of the recent economic recovery.

The loss of federal community and economic development funds will likely have a great impact on these communities because these programs utilize formulas which target funding to areas of poverty and unemployment. Under the administration's budget proposal, urban areas will experience a 22.7 decrease in CDBG funds and a moratorium on housing funds at a time when the cost of urban housing is increasing, rental housing units are being lost, and the number of homeless is rising. Rural areas are being devastated by the farm crisis which is consuming individual assets and decreasing private sector investment in these regions.

Without these federal economic and community development programs which are slated by the Administration for elimination, moratoriums, and reduction, our infrastructure will continue to deteriorate, and thousands of jobs and investment dollars will be lost.

Conclusion

In summary, Mr. Chairman, the nation's Governors endorse the goal of deficit reduction incorporated in the administration's budget, but we believe that military spending should also share more equally in those reductions.

Further, the Governors believe that federal housing and community and economic development programs should not suffer further reductions. These programs have worked in the past by providing decent shelter and worthwhile jobs in the most depressed regions of our nation. For example, since 1978 the UDAG program has leveraged millions of dollars in private investment. The CDBG program has helped eligible communities provide a variety of needed services, including infrastructure maintenance and repair. Both of these federal programs have helped create and retain thousands of jobs by targeting funds to communities which have not experienced the benefits of the recovery of our national economy.

Mr. Chairman, on behalf of the nation's Governors, I urge you and the Appropriations Committee members to continue funding these programs at the 1985 appropriations levels. Thank you for the opportunity to present these views.

NGA POSITION ON THE FEDERAL BUDGET

The nation's Governors are deeply concerned about the large federal deficits that are projected over the next five years. These deficits are projected to increase from $215 billion in fiscal year 1984 to $296 billion in 1990 if current policies are continued. We believe it is critical that a major federal deficit reduction program be enacted in 1985 while the economy continues to be strong. Failure to address the problem this year will require stronger measures in the future. Such measures may be extremely difficult to enact if the economy slows.

Our concerns focus on the following areas:

o The economy - Deficits of the magnitude projected (5.3 percent of GNP by 1990) will significantly retard economic growth and productivity over the next decade. First, high interest rates will maintain an over-valued dollar which will continue to restrain United States exports and stimulate imports, thereby reducing growth and contributing to the current international trade deficit of over $120 billion. Second, high interest rates will limit investment in plant and equipment, which will restrict productivity and America's ability to compete internationally over the long-run. Finally, both high interest rates and the high value of the dollar are causing distortions of national priorities and major disruptions in certain sectors of the economy, particularly agriculture and heavy industry. During the next decade, unemployment and other economic disruptions may take place if significant deficit reductions are not attained.

o State fiscal condition - The fiscal condition of states in 1984 was somewhat improved over the very difficult 1982-1983 period, when 44 states raised taxes and 43 reduced spending to balance their budgets. Due to the budget reductions over this period, state spending in 1984 was still below the real level attained in 1981. The 1985 surplus projected for states is $5.3 billion, which represents only 2.9 percent of spending. The financial markets prefer a 5 percent margin to maintain the highest ratings for state bonds. In addition, 50 percent of the balance is expected to be in only five states, with most other states either reporting very small balances or projecting deficits. Furthermore, states that rely heavily on natural resource production or agriculture are witnessing substantial erosion of their tax revenues. Funds available to the states in future years must be used to meet pressing obligations deferred by states because of the recession—infrastructure, education, environmental protection, income security, prison overcrowding and other critical needs. If the federal deficit restrains economic growth, then state revenues will be reduced, and states must reduce services or raise taxes to compensate for lower revenues. States are not in a position to absorb significant new fiscal responsibilities from the federal government.

Accordingly, the Governors urge Congress and the Administration to initiate a four point plan to restore the fiscal position of the United States as follows:

1. Adopt a freeze on federal spending for fiscal year 1986 that shares the burden among national defense and domestic spending and that does not burden already hard pressed lower income Americans. Given that the federal budget problem is now approaching a crisis situation, a freeze on spending is required.

2. Reform major nonmeans tested entitlements and other mandatory spending programs to increase the long-run control of federal spending.

3. After the budget freeze and reforms have been enacted, it may be necessary to increase revenues to reduce the structural deficit.

4. Enact procedural reforms including a balanced budget constitutional amendment.

The combination of the budget freeze and program reforms and the potential revenue increase should be consistent with the long-run goal of attaining a balanced federal budget. Interim goals of reducing the projected deficit to approximately 3 percent of GNP by 1988 and 1 percent by 1990 should be adopted.

Budget Freeze

1. Non-defense discretionary spending: Hold the 1986 appropriation level to the same level as in 1985. For the 1987-1990 period, this component should be increased at one-half the rate of inflation. This category includes programs administered through state and local governments, assistance to business and commerce, veterans programs, health care, environmental regulation, research and development, economic and military assistance to foreign governments, and most of the cost to operate the various branches of the federal government. Funding should be made available for the federal share of superfund, which should be reauthorized this year. Reductions in other programs in this category should be made to accommodate this funding.

2. National defense: Limit national defense appropriations in 1986 to the 1985 level plus inflation. For the 1986-1990 period national defense spending would be allowed to increase 1-3 percent in real terms. Defense spending has increased 61 percent between 1981 and 1985, and some slowing of this rate is appropriate to maintain cost-effectiveness in weapons systems and other procurement.

3. Selected means-tested entitlement programs: Provide full funding for the following programs: AFDC, Food Stamps, Title XX, Medicaid, SSI, child nutrition, and child welfare services. These programs have already been reduced substantially over the last four years and have already contributed their share of budget reductions.

4. Other entitlement and mandatory spending programs: Restrain the growth in these entitlement programs which are projected to increase 33 percent between 1985 and 1990. Included in this category are the medical insurance, Social Security, disability, farm price support and retirement programs funded by the federal government. A one-year freeze on all cost-of-living adjustments should also be enacted.

Long-run Reforms

After the budget freeze has been enacted, the Congress and the Administration should turn their attention to reforms which will increase the cost-effectiveness of entitlement and other mandatory spending programs. Over the long-run the goal should be to increase the controls over the federal budget. Reforms should include Medicare, federal pensions and farm programs. A new commission should be convened to look at potential long-run reforms in Social Security. It is important that reforms in these programs protect low income beneficiaries.

Revenue Measures

Even after the 1986 budget freeze and long-run reforms are enacted, it may be necessary to raise some additional revenues to attain the interim deficit targets. The revenue increase must be one that does not raise average or marginal tax rates, shares the burden fairly, and can be enacted quickly. State and local tax deductibility should not be singled out for reduction or elimination in any revenue increase.

Another important measure that the federal government could take to help reduce the deficit is to tighten enforcement of the federal tax code. Such action, which has recently been employed in many states with excellent results, would serve not only to ensure payment to the Treasury of needed revenues but would increase public confidence in the fairness of the federal system of taxation. The National Governors' Association urges that the Administration and Congress strengthen the Internal Revenue Service tax enforcement procedures—and increase resources, if necessary to pay for them—as integral to and in conjunction with efforts designed to eliminate the structural deficit.

Procedural Reforms

Procedural changes which have worked in the vast majority of states must be made so that the Administration and Congress can eliminate the deficit by the end of fiscal year 1990. A constitutional amendment requiring a balanced federal budget and providing the President with line item veto authority are needed to insure federal fiscal responsibility.

Budget Targets

In order to assure a commitment to deficit reductions, the Governors urge Congress and the Administration to agree on specific bipartisan deficit targets for each of the next five fiscal years. These deficit targets should represent a downward glide path from approximately 3 percent in 1988 to 1 percent of GNP by 1990. Congress and the President should work together to approve FY 1986 appropriations, tax and reconciliation legislation consistent with the established targets. The ultimate goal which the NGA recommends is the complete elimination of the deficit. Congress and the Administration should adopt a coherent long-term strategy that achieves this ultimate goal and meets the 1990 objective.

Adopted February 26, 1985

HOUSING ISSUES AND NEEDS

The 1949 national policy of "a decent home and a suitable living environment for all Americans" must continue to be a major national priority for the 1980's. The nation is still far from reaching this goal, particularly in the area of affordable housing. Hence, a national housing goal is as important now as it was in 1949. Therefore, Congress should again articulate its commitment to a national housing goal.

The supply of affordable housing in most markets is not adequate to meet the demand; the shortage is particularly acute in the rental housing sector and in regions experiencing rapid population growth. Housing costs have risen faster than incomes, making decent housing unaffordable for many people and raising the costs of subsidy programs. The cost of housing is a particular problem for low and moderate income families, and barriers to choice posed by racial and other discrimination have not been fully overcome.

The national housing goal must remain a high priority for the federal government, as well as the states, local governments and the private sector during the 1980's. Housing programs should be designed to encourage joint public/private efforts to finance, build, and maintain an adequate supply of affordable housing.

Addressing Problems of Supply and Cost

In the 1980s, about 42 million Americans will reach the prime home-buying age of 30, compared to about 30 million in the 1970s. The trend toward more single-person households not only increases aggregate demand for housing but also results in changes in the type of housing units in demand. Growth in demand also results from homeownership being an excellent personal investment in inflationary times.

The housing market in many areas of the country has been unable to satisfy this growth in demand. The shortfall in supply is attributable to two major factors: the shortage of capital for new residential construction and the rapid escalation of housing costs.

Housing construction is one of the most cyclically sensitive sectors of the economy. Minor fluctuations in interest rates can produce major changes in the mortgage market and production levels for new housing. Although the recent growth of long-term certificates of deposit and expansion of the secondary mortgage market have mitigated this problem somewhat, residential construction still remains highly sensitive to cyclical changes in the economy.

Sharp increases in the costs of housing over the past decade have placed the dream of owning a single-family home beyond the reach of a growing proportion of households. The market has not provided new alternative home ownership opportunities (e.g., new condominiums) in sufficient quantities to satisfy the demand; nor has construction of new multi-family rental housing been sufficient to meet rental demand. Increases in construction and financing costs have been a significant constraining factor in both the single-family and multi-family housing markets. In many areas, operating costs for multi-family rental housing have increased more rapidly than rents, further eroding investment and contributing to severe shortages of rental housing.

The present housing crunch can be attributed in part to the cumulative effects of government monetary and fiscal policies, environmental and other restrictions on residential construction, rent control and condominium conversion, and program investment decisions. Because government policies exert a major influence on the housing market, solutions to the related problems of supply and cost depend, in part, on governmental action to remove unnecessary barriers to a smoothly functioning housing market. Direct government involvement should be focused on those areas where the private sector is unable or unwilling to address the needs of particular markets or population groups. In addition, governmental agencies continue to have an important role in facilitating an efficient system of mortgage financing.

Federal Actions Suggested

- A more stable flow of capital into residential construction would result in a more smoothly functioning housing market and a lower rate of growth in housing costs. A thorough reevaluation of the regulation of thrift institutions and the effects on housing finance of conventional monetary policy should be undertaken to identify alternative approaches that can "smooth out the bumps" in the availability of funds for residential construction. Particular attention should be given to measures that would enable thrift institutions to compete more effectively for funds during periods of high short-term interest rates.

- The federal government should, consistent with adequate investor protection, encourage the activities of both federal and private issuers and guarantors of mortgage backed securities in order to maintain an adequate flow of capital through the secondary mortgage market. Federal policy should continue to recognize the central role played by public or quasi-public institutions involved in the secondary mortgage market. The ceiling on the size of single-family loans purchased by FNMA and FHLMC should be adjusted for high cost areas to permit homebuyers and financial institutions in all sections of the country to benefit equally from the activities of these federally sponsored corporations.

- Homeownership and rental subsidy programs should be targeted to low and moderate income households but should also encourage a mix of family income levels in assisted housing. These programs should be reviewed regularly to ensure that interest rates and mortgage limits are set at realistic levels.

- To reduce the extreme effects of the money market cycle on mortgage availability, private lenders should be encouraged to offer more flexible mortgages (e.g., variable rate, graduated payment), without precluding consumer choice of conventional financing. Federal regulatory agencies should monitor the growth of these new mortgage instruments and, where necessary, should consider limitations to protect lenders and borrowers alike against unacceptably high economic risks.

- Programs utilizing a shallow subsidy approach should be retained to increase the supply of rental housing, provided such a program does not reduce commitments to low income rental housing needs and itself contains a low or moderate income component. Such a program should permit states the flexibility needed to assure production of rental housing in areas where the problems are most severe. Determination of the mix between new and existing housing units for purposes of low income rental subsidy programs should be based on community needs, as reflected in locally developed housing assistance plans.

- The Mortgage Revenue Bond Program is an important vehicle for the financing of home ownership in light of continued high interest rates and housing costs which place home ownership out of the reach of many would-be first time homebuyers. The Mortgage Subsidy Bond Tax Act of 1980 and the Deficit Reduction Act of 1984 placed significant restrictions on the program, and there is no need to further restrict the program. Congress must eliminate the provision that "sunsets" the Mortgage Revenue Bond Program on December 31, 1987. The Mortgage Credit Certificate Program, newly authorized by the 1984 Act, should remain an optional alternative to, not a mandatory replacement for, the states' use of mortgage revenue bonds. Consideration should be given to utilizing existing public and private programs to operate in tandem with mortgage revenue bonds to reduce home ownership costs for target population.

- In many jurisdictions, the construction of rental housing other than luxury dwellings is economically infeasible without tax-exempt financing. Therefore, Congress should continue to permit state housing finance agencies to issue tax-exempt multifamily housing industrial bonds. To further reduce finance costs and thus promote affordability for low and moderate income tenants, federal guarantees should continue to be available in tandem with tax-exempt bonds for housing.

- Federal housing policies should recognize the special needs of rural areas, and the federal commitment to rural housing should remain intact. The Farmers Home Administration should encourage joint federal/state initiatives to develop affordable rural housing.

- An explicit federal strategy to avert housing abandonment should be developed. The most effective strategies are likely to be those that combine and target the resources of both federal and state government. Existing federal programs therefore should provide states with flexibility to target them to buildings threatened with abandonment or acquired by government as a result of foreclosure. Expansion of the urban homesteading program and provision to set aside Section 8 units for this purpose should be given priority consideration in developing an overall approach to the problem of abandonment.

- Private pension funds, which are federally regulated pursuant to the Employee Retirement Income Security Act (ERISA), hold approximately $700 billion in assets. Historically, only a small percentage of those assets have been invested in housing. The federal government should carefully consider whether there exist any unnecessary regulatory barriers to pension fund investments in residential mortgages.

State Actions Suggested

- Over forty states have established housing finance agencies that use tax-exempt revenue bonds to meet the home ownership and rental housing needs of low and moderate income residents. States are also responsible for overseeing the issuance of mortgage revenue bonds by local units of government and for ensuring that these programs conform with legitimate public purposes. States should continue to assure that this indirect federal subsidy is used in a responsible and effective manner to fill gaps in the private mortgage market. States should also encourage their housing finance agencies to explore and evaluate the uses of the newly authorized Mortgage Credit Certificate Program.

- While federal programs play a significant role in stimulating new condominium construction, regulation of conversion and protection of tenants' interests can be addressed most effectively in response to particular market characteristics at the state and local level. The loss of rental units and displacement of tenants due to condominium conversions are phenomena best regulated at the state level.

- As state and local public employee pension funds grow in importance in national capital markets, they are increasingly able to play an important role in housing finance. States should consider using their pension funds to provide mortgages to public employees, shared-equity programs to lower initial downpayments in return for a share of eventual capital gains, and direct provision of loans for single-family housing.

- In recent years, the decline in Americans' ability to purchase homes and find affordable rents has become a national crisis. States can play a significant role in reducing housing costs. States should examine, where appropriate, their land development and housing policies and regulations to consider amending those which unnecessarily add to the costs of housing production. States should also provide information to their local governments about ways to reduce housing production costs and make housing more affordable.

- In recent years numerous federal, state and private sector studies have demonstrated the cost savings which are possible to the homebuyer through reforms and streamlining of the nation's building regulatory process. States, working together with their units of local government, should seek to reduce the building regulatory portion of the cost of new housing by adopting and maintaining uniform modern model building codes and supporting the introduction of new building technologies.

- State and local government further should implement those codes through streamlined administration techniques and provide positive support for the adequate education and training of state and local code enforcement personnel.

- States should actively monitor the progress of Farmers Home Administration state offices in obligating their allocated funds for rural housing. Where appropriate, states should work with FMHA officials to remove obstacles to participation in FMHA housing programs.

Meeting Low Income Housing Needs

While national housing policies should be designed to ensure an adequate supply of housing to satisfy the demands of the general population, particular attention must be given to meeting the needs of low income households. Past Federal subsidy programs for new construction and substantial rehabilitation of rental housing have been characterized by high unit costs. Although rent subsidies for existing housing units may appear to lower unit costs and stretch the housing assistance dollar further, this approach is not responsive to low income needs in areas where the supply of existing housing is tight.

The range of federal subsidy programs directed to meeting low income housing needs should include programs that effectively leverage federal funds to produce new units as well as programs that provide rental assistance for existing units. Priority should also be given to programs which protect the physical and fiscal soundness of the nation's existing inventory of assisted low income housing. Government at both the federal and state levels should strive to maintain sufficient levels of activity, improve program flexibility and adaptability, and ensure effective administration of programs in response to local needs and conditions.

Greater recognition should be given to the fact that programs which produce new or rehabilitated housing units provide more than shelter. They also play an important role in stabilizing families and revitalizing distressed neighborhoods. Thus, low income housing programs should be viewed as an important component of community and economic development efforts.

Federal Actions Suggested

- Although past and present federal programs have improved housing conditions and housing choices for millions of americans, there remains a significant shortfall in the amount of decent and adequate housing at rents which low income households can afford. For this reason, low income housing programs should be maintained at adequate levels.

- To the extent that certain construction programs may be considered too costly, greater reliance may be warranted on rehabilitation of available buildings to increase the supply of decent housing for low income tenants. Such programs should be implemented in a manner which assures that the current tenants of renovated units are not involuntarily displaced.

- The Federal Government should accord high priority to maintaining the physical and financial soundness of existing low income, federally assisted housing and protect substantial governmental investments in these properties while assuring their continued viability and affordability for low income tenants.

- Increased attention is being given to the idea of "privatizing" public housing -- i.e., selling public housing units to the tenants. Demonstration projects to explore tenant purchases of public housing are more appropriate at this stage than wide-scale national programs. Federal subsidies should remain in place where necessary to help low income owners maintain their units after they purchase them.

- To ensure that federal low income housing resources are directed to projects where the need is most acute and the impact greatest, program dollars should be allocated in accordance with local, regional, and state plans and priorities.

- The Farmers Home Administration has negotiated formal cooperative agreements with a number of states to assure that federal funding decisions are consistent with overall state priorities. HUD should make the necessary program adjustments to permit and encourage similar agreements with states.

- Total reliance on a rental subsidy approach should be discouraged. However, Congress should continue to fund both Section 8 housing certificates and housing vouchers while carefully monitoring these programs' impact and effectiveness in meeting low income housing needs. Fair market rent determinations should be pegged closely to local market conditions and should be adjusted frequently as market conditions change.

- Housing program regulations should be as simple and straightforward as possible and should be consistent among all agencies that finance housing so red tape costs are minimized and private sector participation is not discouraged.

- Federal block grants to states, whether for the construction, subsidization, rehabilitation or operation of housing units, may be an appropriate mechanism for federal assistance. Any block grant proposal should be funded at substantially the same level as the federal programs to be consolidated. The block grants should be characterized by flexibility, adequate administrative funds, targeting to low and moderate income individuals and minimal mandates. A block grant proposal should permit each state to choose to administer the program or leave the administration with the federal government.

State Actions Suggested

- States should continue the roles they have played successfully -- developing appropriate housing strategies, filling in gaps between federal programs, complementing and adapting federal programs to work in local settings, and providing technical assistance to local agencies and private developers who utilize federal and state programs.

- Because state housing finance agencies (HFAs) have been particularly successful in forging linkages with federal programs, states should continue to strengthen their HFAs and target their resources to complement federal and private sector efforts to meet low income housing needs.

- Many states have found it beneficial to act as housing authorities for smaller communities that otherwise lack the resources and expertise to participate in the Section 8 and public housing programs. This approach warrants consideration by other states.

- States should encourage the use of available housing programs as a component of neighborhood revitalization efforts, in conjunction with community development block grants and similar programs. State technical assistance can help localities effectively combine federal housing and community development funds for maximum benefit.

Ensuring Fair Housing Policies and Practices

The rights of free choice in the housing market are protected by federal and state laws. Enforcement of federal fair housing laws is delegated to states that have comparable legislation. This augments the enforcement provisions of the federal law with the generally greater authorities the states possess. Effective enforcement of federal and state fair housing laws is an important step toward ensuring equal opportunities and preventing overt discrimination in housing.

However, there are some subtle barriers to freedom of housing choice that can be more difficult to identify and overcome (e.g., mortgage or insurance redlining, exclusionary zoning practices). In addition, the market often does not meet the needs of those with special housing requirements and consequently deprives them of the range of choice available to others. While federal and state regulations, enforcement mechanisms, and disclosure requirements are necessary tools to eliminate unfair housing practices, only through the active involvement and commitment of the private sector can the promise of equal opportunities in housing be fulfilled.

Federal Actions Suggested

- Enforcement of the federal (and state) fair housing statutes is uneven, in part because of the federal government's reliance on the powers and resources of state agencies. To improve the enforcement record, the federal government should provide sufficient resources to the states for enforcement.

- The Home Mortgage Disclosure Act is an important instrument for overcoming mortgage redlining, one of the indirect obstacles to equal opportunity in housing. The program should be made permanent and its implementation should continue to be carried out as diligently as in its initial years.

- In recent years, a number of federal initiatives have been undertaken to encourage expansion of housing opportunities for the disadvantaged through demonstration programs, incentive mechanisms, and the establishment of priorities within existing federal programs. Efforts to develop "partnership" agreements with state and local governments represent a similar positive approach to fair housing. The Governors endorse the provision of positive incentives for achievement of fair housing through the development of a cooperative partnership approach to shared federal-state objectives.

State Actions Suggested

- States should continue aggressive enforcement of state and, where delegated, federal fair housing laws. In addition, states should encourage affirmative efforts by local governments to eliminate exclusionary zoning and other local restrictions that pose barriers to freedom of choice in housing.

- State housing finance programs can be used to expand housing opportunities as a positive complement to enforcement of antidiscrimination laws. States should also assume a leadership role in working with the full range of commercial sectors involved in housing (e.g., builders, owners of rental housing, realtors, lending institutions) to gain active private sector involvement to eliminate discriminatory practices and assure equal housing opportunities.

COMMITTEE ON ECONOMIC DEVELOPMENT AND TECHNOLOGICAL INNOVATION

Committee Resolution
Federal Economic and Community Development Programs

The National Governors' Association's (NGA's) policy position on Economic Development Challenges of the 1980's, Intergovernmental Cooperation in Economic Development (E.-3) reads in part:

> The continued use of many major federal economic development tools is now threatened by reductions in federal funds. The federal role in economic development should be to create a better climate for increased private investments and to provide the more comprehensive resources of the federal government to areas experiencing significant economic problems.

The administration's fiscal year 1986 budget calls for the elimination of the Urban Development Action Grant (UDAG) program, the Business and Industrial (B&I) program, the Small Business Administration (SBA) and the Economic Development Administration (EDA). The proposed fiscal year 1986 budget also calls for a large reduction in funding for the Community Development Block Grant (CDBG) program.

The submitted budget would eliminate the Rental Housing Development (HODAG) program and place a moratorium on major federal housing programs.

The federal role in state and local development initiatives is vital and still needed. Programs such as UDAG, EDA and CDBG have provided the financial incentives to spur job creation and capital expansion in distressed communities which have escaped the benefits of economic recovery. Thousands of jobs will not be created and millions of dollars in private investment will be lost, if these programs are terminated or reduced.

The members of NGA's Committee on Economic Development and Technological Innovation firmly support the continued funding of these targetted economic development programs. These important programs have already suffered major reductions over the last four years. The NGA supports an overall freeze in non-defense domestic discretionary spending as a contribution to the reduction of the high national deficit. NGA can not condone, however, additional program cuts or eliminations since they are neither warranted nor cost effective.

STATEMENT OF DONALD G. WEINERT, P.E., ON BEHALF OF THE NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

We are pleased to submit our statement on the FY '86 National Science Foundation Appropriations. I am Donald G. Weinert, P.E., Executive Director of the National Society of Professional Engineers (NSPE). NSPE is a professional engineering society, representing over 75,000 engineers of all disciplines nationwide. Our members are organized into 50 state societies and over 500 local chapters, and work in industry, education, private practice, construction and government.

We appreciate this opportunity to express our views on the National Science Foundation budget. Over the past several years we have participated in the debate over the proper Federal role in fostering enhanced technological competitiveness, and strongly believe that the National Science Foundation plays a critical role. In fact, we have been leading advocates of strengthening the NSF's commitment to fundamental engineering research and education as the most appropriate means to maintain an adequate base of research and talent, both of which are essential to technological progress. The NSF has demonstrated that while preserving excellence and integrity in basic science, it can and will serve equally well for engineering education and research. We applaud the current direction of NSF's Engineering Directorate, and appreciate the support and guidance this Subcommittee has provided. Erich Bloch and Nam Suh have already made some promising changes in the Directorate, and are leading the Foundation into a new era of strength in both science and engineering.

The National Science Foundation plays a unique role among Federal agencies. There is no other government agency which has the responsibility to support civilian, academically-based research in a manner that has a dramatic and positive influence over the technical talent this country educates. Research and talent are both essential ingredients for innovation and technological competitiveness, and the NSF's budget should be examined from this perspective rather than solely in the sphere of science policy. In the current climate of increased international competition, we can no longer afford to assume that technological pre-eminence is automatically American. The role that the National Science Foundation plays must not be underestimated.

The problems facing our engineering schools today can accurately be characterized as having reached a crisis stage. This is both ironic and tragic in view of the unprecedented importance of talented engineering graduates to assure improved industrial competitiveness. Technological innovation depends on entrepreneurs to build new industries and strengthen our present industrial base. While the most outstanding high school graduates are competing to enroll in engineering programs, engineering schools are struggling to respond to these national needs in the face of overburdened faculty, inadequate facilities, and obsolete equipment.

Several examples will underscore the seriousness of this matter. Nationally, a 1982 study conducted by the National Society of Professional Engineers found that instructional equipment needs--not including computers--amounted to $2 billion. Indeed, many of this nation's engineering students are being forced to learn modern engineering practice in laboratories equipped with instrumentation older than they are!

To compound the problem, engineering schools are experiencing severe faculty shortages at just the same time student enrollments are skyrocketing. While engineering enrollments rose 115 percent over the last decade, engineering faculty grew by a mere 14 percent. The latest figures indicate an 8.5 percent engineering faculty vacancy rate, which grows to 23 percent if one considers student/faculty ratios associated with quality education. Since 1975, these ratios have risen from 17.0 to 23.0 in engineering schools, resulting in class sizes far too large and an environment not conducive to learning by any standard.

An equally compelling but less well-documented problem lies in the need for renovation and construction of facilities. The attempts of some institutions to bypass the peer review system in order to receive Federal funds for facilities is an indication of the severity of this problem. While I cannot suggest a solution at this time, I note that your colleagues on the House Science and Technology Committee have recommended that the Foundation conduct an analysis of university research facilities needs. This study will provide the necessary information to proceed with solutions.

These problems are clearly too deep for any one sector to solve alone. A comprehensive effort on the part of academe, industry and government is the only way we can combat the weaknesses in engineering education that have been growing since the Apollo era ended nearly two decades ago. We can no longer afford to underinvest in engineering research and talent, and I commend the Administration for having the foresight to recommend modest growth in the FY '86 budget for the National Science Foundation. Without attention to our bright, young minds studying engineering and science, whatever gains we make today will suffer from a lack of talent tomorrow. While we all recognize the severity of the deficit and the importance of seeking an austere budget, we strongly believe that the FY '86 budget proposals for the NSF represent a sound investment in the future of America, rather than a drain on the Treasury.

While we fully support the recommended $170 million budget for the Engineering Directorate, we must point out that it represents just 14 percent of the total NSF budget. Recent studies have estimated that responding to the most urgent needs of our engineering schools would require a budget for the Directorate in the range of $500 million per year. Given the critical importance of engineering education and research for this nation's prosperity and security, we believe that such a level of support must become a national priority.

Nevertheless, working within the constraints of the budget, we believe that the National Science Foundation has taken important steps in recognizing the Engineering Directorate. We feel strongly that by organizing the Directorate along functional rather than discipline lines, current weaknesses in engineering research will be more effectively addressed. The character of engineering research is changing rapidly, and universities appreciate the impetus provided by this move to respond to the realities of engineering practice. While industry demands extensive interdisciplinary, team approaches, the vast majority of engineering schools do not currently have the capability of training students in this manner. Further, in emerging areas such as manufacturing and biotechnology, there are few engineering programs to respond to important national needs. Not only does this force industry to retrain recent graduates, but it minimizes the interest and enthusiasm that could be generated in students by invigorating educational preparation.

The National Science Foundation has responded well to these problems. The newly established Cross-disciplinary Research Center (ERC) programs provides just the type of research and training opportunity that engineering schools currently lack. By establishing centers of excellence in specific areas that require cross-disciplinary investigation and experimentation, students and faculty will have a chance to explore problems in a manner that not only will yield critical research results, but will provide essential training. Integrating the skills and knowledge of a university's existing resources with new tools will enable us to prepare students for the challenges of tomorrow. It is especially important to note that this program is designed to benefit undergraduates as well as advanced degree candidates, since unlike the science disciplines, a bachelors degree is the entry level degree in engineering. For too long, the NSF has not focused on this important characteristic of the engineering profession.

The ERC program is a welcome addition to the scope of the NSF programs. In its first year this program generated responses from 142 or roughly half of the nation's engineering schools. Yet, with just $10 million, only six Centers could be funded. While the NSF certainly should not be expected to support every good proposal, it should be able to address well-documented, important national needs in a more responsive manner. The $25 million funding level requested by the Administration is the absolute minimal support that can sustain this exciting program. I hope that in attempting to balance fiscal austerity with program needs, the Engineering Research Center program will remain a top priority. I fully support the testimony given to this effect by Mr. Bloch and Dr. Keyworth, and hope you will follow their guidance.

Other NSF programs that are fostering progress in meeting important engineering research and education needs deserve attention as well. The Presidential Young Investigator program is providing opportunities for our most promising young faculty to pursue their research interests, and through the required private sector matching requirement, is fostering local university-industry partnerships.

In the computer area, the NSF is also playing a leadership role. Through the establishment of supercomputer centers and national computer networks such as ScienceNet, the NSF is greatly expanding the computing capabilities and access available to university researchers.

On another topic, I know that this Subcommittee shares our concern for precollege education. However, it is important for you to realize that the solution to insuring the availability of adequate scientific and engineering manpower presently looming before this nation does not lie in actions addressed at precollege education. Indeed, our engineering schools are already swamped by applications from several times the number of talented high school graduates they can presently handle. The bottleneck in meeting America's need for scientists and engineers lies in the limited capacity of our nation's engineering schools. Without rapid attention by both the public and private sectors, the pipeline supplying technical talent to this nation will become even more constricted--regardless of what actions are taken at the precollege level. Although precollege education does demand attention, the primary objective for improving our elementary and secondary schools should be to assure a well-educated citizenry, independent of quantity. Quality, not quantity, is our weakness.

While we are anxious to see the Foundation's precollege programs advance, we respect the NSF's judgement in deferring funds from the FY '85 budget to the FY '86 budget. We urge you not to increase the appropriation for the Science and Engineering Education Directorate. As you know, Mr. Bloch and the entire Foundation staff have developed a delicately balanced budget, and I hope we can help maintain the program priorities and funding levels that have been recommended by the Administration.

In sum, we strongly endorse the $1.56 billion proposed FY '86 budget. The time has come for the NSF to take on the challenge of maximizing its influence in strengthening the academic engineering community. By doing so, we will be building a future of world technological leadership. We look forward to working with the Subcommittee on this and related matters, and appreciate this opportunity to share our views on the National Science Foundation. We will be pleased to respond to your questions.

STATEMENT OF RICHARD A. SNELLING, CHAIRMAN, PROPOSITION ONE, INC.

First of all, I would like to thank Chairman Garn and the members of the HUD-Independent Sub-Committee for the opportunity to submit testimony on the national challenge of solving the deficit problem. In my view, the work of this Committee as part of the overall appropriations process will play an important role in the final resolution of the deficit issue, and is therefore vital to the future of the United States.

Many of you know me from my four terms as Governor of Vermont or from my tenure as Chairman of the National Governors Association. Yet you may be unaware of my new role, that of Chairman and founder of Proposition One.

We are a nonprofit, bipartisan membership organization of concerned citizens from many constituencies. Former Presidents Gerald Ford and Jimmy Carter are honorary co-chairmen of this effort. Also among those on our distinguished Advisory Board are eight former cabinet secretaries, three former Chairmen of the President's Council of Economic Advisors, and thirty-two prominent economists and business leaders. Our sole purpose is to educate and inform the American public of the deficit danger to create a supportive environment in which the Congress and the Administration may act to promptly resolve the deficit crisis without fear of political retribution.

On behalf of the Proposition One organization, I hope the members of this Sub-Committee will scrutinize the components and subcomponents of the HUD and other agency budgets that you oversee with a thoughtful and surgical eye. However, unlike many others who have testified before the Sub-Committee, the purpose of my testimony is not to tell you that you should not cut "this part" or "that part" of the budget because something awful is going to happen when you do. Rather, I am here to ask you to not lose sight of the global view of the budget problem as you receive testimony regarding proposed changes in specific programs. We urge you to remember the critical need to balance "quality" in spending restraint with enough "quantity" to help eliminate the deficit threat.

Although I would like to now elaborate on the more global aspects of deficit elimination, I have no intention of taking the committee's time telling you that these huge federal deficits pose a serious threat to our future. I do not want to cover old territory or rehash arguments you have all heard several times before. If any one of the Sub-Committee members does not believe that they are a serious threat to America's future, I would be happy to answer any specific questions you may have concerning the implications of continuing the status-quo in our spending and taxing policies.

Instead, let me briefly state that Proposition One members believe if the Congress fails to eliminate these deficits, we will eventually be forced to contend with the problems of a "fluttering-stuttering" economy which will lead us down the path of long-term economic stagnation. If we permit this to happen, the ability of the economy to support the essential elements of the American dream will be dramatically restricted, and our children and our children's children will not have the same opportunity for prosperity that we all have enjoyed in our time.

Similiarly, I am not going to tell you that I have a painless solution to the deficit dilemma. The very fact that the problem still exists bears strong testimony to the fact there are no easy solutions. I believe you would have found one by now if there were one to be found. Anyone who appears before you who says he or she has the "answer," and it is simple and without sacrifice, does not really have a viable solution to the problem.

Mathematically, the sheer size of the deficits we are now experiencing and those that are projected for the rest of the decade mean that all of the deficit solutions which are currently "in vogue" will not be able to bring about the resolution of the problem.

Obviously, the entire $250 billion needed to balance the budget by the end of 1989 could not come from just cutting the budget for the military. If we tried, the resulting erosion in the strength of our armed forces would threaten national security. Certainly, the American people would not allow the Congress to increase our vulnerability to attack by hostile forces through such a deficit reducing strategy.

Secondly (and perhaps even more obvious to this Sub-Committee), relying solely on cuts in the domestic budget to eliminate the deficit threat will likewise be unsuccessful. Although this option seems to be popular at the present time, because of contracts and commitments made in previous years, there simply is not enough meat on the bones of discretionary non-defense spending programs to do the job, especially considering that the cuts already achieved during the first four years of the present Administration will total $63 billion (in 1984 dollars) in 1986.

Although I am sure many Sub-Committee members are already acutely aware of the shrinking size of the non-discretionary domestic budget, Proposition One members, nevertheless, want to go on public record as saying that the total cost of all domestic spending programs, other than entitlements and interest, today amounts to only 70 to 75 percent of this year's deficit. That means, that if defense spending, Social Security, interest on the debt and other non-negotiable contracts were left untouched, and everything else in the federal government were stopped cold, the nation would still be in the red.

Thirdly, although possible in theory, we also cannot accomplish the job of eliminating the deficit by exclusively raising revenues. To do so would result in a tax burden well in excess of the all-time record of 20.8 percent of GNP established in 1981. Such a tax onus would stifle incentives for savings and investment, and would limit productivity gains which are so vital to increasing our future living standards.

Moreover, combining only two of the three will likewise result in failure. Just raising taxes and cutting the defense budget conspicuously failed last fall to attain the necessary majority in the Congress to be enacted. Relying on a combination which includes just cuts in the domestic budget and revenue measures will also meet a similiar fate.

The conclusion of our organization is that the only credible deficit elimination plan will necessarily require a balanced approach to the problem, including roughly equal proportions of cuts in domestic spending levels, reductions in planned outlay levels for the military and increased revenues. We believe anything less than this balanced three-pronged attack on the deficit will fail to attain the needed majority in the Congress to get a plan enacted. This Sub-Committee can and should make a significant contribution to such a balanced solution.

Our message to you both as Sub-Committee members and as U.S. Senators is please act promptly, because the window of opportunity is vanishing. Each year we wait means that the deficit becomes further imbedded in the economy and the task becomes even larger, while the number of available options diminish.

In addition, please use all three mechanisms at your disposal. Modest revenue increases, enacted as part of a package which includes both restrained domestic and defense spending levels, would not only be of the size necessary to move toward a balanced budget by the end of the decade, but would also represent a compromise between the conflicting views of the adequacy of defense and domestic spending plans.

Furthermore, charging the American public for the "full cost" of what the government is spending may also result in greater gains in expenditure restraint than is presently possible when the electorate is receiving more than they are paying for. I am encouraged by the fact that the national habit of "tax and spend" has at long last been broken. But now the task before us is to come up with an alternative to the even more disastrous policy of "borrow and spend."

Proposition One believes that we should order what we need as a nation, but we should also pay for what we order. By budgeting for deficits, we are simply shifting our present tax burden onto future generations, along with a huge net interest premium.

The Proposition One organization is distinctly different from other organizations which have appeared before you. Many of our members are also members of other groups. We are made up of individuals who call themselves Republicans, Democrats, small businessmen and women, union members and realtors, among many others.

We have all come together in agreement that much of the deficit problem centers on the system of advocacy within the Washington establishment, where groups with a common but narrow interest assemble formidable organizations, and concentrate their efforts on solutions to problems which protect their interests. Proposition One represents a much needed umbrella organization committed to the concept of shared sacrifice. We believe that if each of us gives up a little now and the problem is resolved before it becomes a crisis, we will save ourselves from having to sacrifice much more later on when the economy fails.

Over the past month, I have traveled to over twenty metropolitan areas in fifteen states. I have reached twenty-five million Americans with the Proposition One message. Mr. Chairman, my experience has taught me that there are many Americans who already fear these deficits and are willing to support those members of the Congress who will take the necessary steps to eliminate the deficit threat. They are citizens who understand the near and long-term implications and consequences of these deficits and are willing to pay their fair share of an even-handed deficit compromise.

Proposition One is striving to convince ALL Americans that the risk of economic failure justifies a willingness to pay their part of a fair and just solution. We hope that the actions of this Sub-Committee will become an intregal part of such a solution before the clock on the ticking deficit time-bomb runs out.

Thank you.

STATEMENT OF THE NAVAJO NATION

On behalf of Navajo Tribal Chairman Peterson Zah and the Navajo Nation, it is a privilege to submit our comments and concerns on President Reagan's Fiscal Year 1986 budget proposals for the general revenue sharing program. According to the budget documents, the Administration seeks to end the general revenue sharing program in Fiscal Year 1986 because "local governments have decreased their reliance on inelastic and regressive revenue sources to finance local public services."

The Administration would terminate the revenue sharing program at the end of Entitlement Period (EP) 16 (October 1, 1984 - September 30, 1985), which is a year before the current authorization is due to expire. The current law entitles local governments to receive funds through October 1986. To "defund" revenue sharing would require Congress to renege on its revenue sharing commitment through 1986.

The Navajo Nation questions the rationale behind President Reagan's budget proposals. We do not presently enjoy the benefits of a diversified revenue base. Our revenues continue to be derived exclusively from resource rents and royalties and federal sources. Our ability to impose any type of taxation continues to be challenged in the courts. Although we expect the courts to ultimately uphold our authority to impose taxes, it will be years before tax revenues will be sufficient to finance even the most basic government services. It is unrealistic for anyone to pretend that the Navajo Tribal government could replace the Revenue Sharing Program with our own revenues. The general revenue sharing program for the Navajo Nation has filled enormous needs at the local community chapter level, and provided flexibility for solving local problems.

The general revenue sharing program is a fundamental component of the tribal budget. Its loss would trigger wide-ranging and disruptive cuts in the most basic public services, such as local government facilities construction and renovation, water and sewer line construction, and pre-school building construction.

On January 24, 1983, President Reagan issued the Administration's American Indian Policy Statement. His comprehensive policy declaration reaffirmed the government-to-government relationship of Indian tribes with the United States, recognized the primary role of tribal government in reservation affairs, and called for special efforts to develop reservation economies.

The Navajo Nation recognizes the need for a long-term federal deficit reduction plan, but revenue sharing is essential to the Navajo Tribe in providing revenues for general purpose local government. The Navajo Tribe is in a very weak fiscal position. Federal funds are needed to aid the Navajo Nation. We believe that the government-to-government policy of President Reagan implicitly recognizes this fact.

Despite a 10 year old Federal policy of Indian self-determination, the Navajo Indian Tribe, after more than a century of "trustee" domination, remains today as subject as ever to the red tape and shortsightedness of a still burgeoning Federal bureaucracy; the Tribe is still the poorest of America's poor, and still has the worst health and least education of any group in the Nation. The Federal aid to the Navajo Nation, mainly in the form of grants-in-aids, has in recent years steadily decreased.

The Navajo Nation strongly supports the continued funding of the federal revenue sharing program as authorized by Public Law 98-185 on

November 30, 1983, a three-year extension of the general revenue sharing program at $4.6 billion per year. The Navajo Nation further supports the reauthorization of this valuable program at the same funding level of $4.6 billion per year for another three-year extension.

Thank you, Mr. Chairman, for this opportunity to present our views on the continuation of this vital federal program.

STATEMENT OF RICHARD L. STAMETS, DIRECTOR, NEW MEXICO STATE ENERGY AND MINERALS DEPARTMENT, OIL CONSERVATION DIVISION

Thank you Mr. Chairman. I am Richard L. Stamets, Vice President of the Underground Injection Practices Council and Director of the Oil Conservation Division of the Energy and Minerals Department. I am accompanied today by Ms. Leslie Bell, former Florida Underground Injection Control (UIC) Program Director and Mr. Ron Firth who is representing Diane Nielson, Director of the Utah Division of Oil and Gas and Mining. Each of these parties has an additional statement on this matter.

We appreciate the opportunity to address this subcommittee. We did not come to Washington to tell you that increased funding for the UIC program for states through the Environmental Protection Agency is the most important issue facing this Congress. We do mean to say though, that this is an issue of substantial importance now and in the future. There are two basic issues we are concerned with here. The first is the continued use of injection wells and the second is protecting ground water from the potentially harmful effects of injection.

Continued use of injection wells is important. In New Mexico, about one third of our oil production results from wells in secondary recovery injection projects. Another half of our oil production depends upon the continued use of produced water disposal wells. Many oil and gas wells produce large volumes of salt water with the oil or gas and this water must be injected deep underground to prevent contamination of surface and ground water supplies. Nationally, the use of enhanced recovery project injection wells will apparently be necessary for continued significant domestic oil production in the next 20 to 40 years. In addition, injection wells are necessary for much solution mining and for disposal of industrial, municipal, and hazardous waste.

Improper permitting and operation of injection wells can result in contamination of ground water. In New Mexico, 90 percent of our citizens receive their drinking water from ground water supplies. In 1984 up to 26 trillion gallons of water were injected related to oil and gas operations. It is not unreasonable to estimate that each gallon injected could pollute 100 gallons of fresh water. The need for running a strong regulatory program in this state is clear. Nationally, simply ignoring hazardous waste disposal wells could result in problems equal to a Love Canal.

Under the Safe Drinking Water Act and utilizing state and federal resources, we can protect ground water by the proper permitting, reporting, inspection and testing of injection wells. However, the Environmental Protection Agency is not providing sufficient funds to fully establish and properly run UIC programs across the country or meet the authorized 75 percent 25 percent Federal/State program cost split. This lack of sufficient funding increases the threat to ground water. This threat can take several forms, three of the most important of which are as follows:

1) Inability to hire technical staff to assure that the permitting process works to authorize only properly engineered and constructed wells;

2) Inability to hire any or enough inspectors to assure that inspections sufficient to maintain mechanical integrity of the wells are made; and,

3) Inability to hire hydrologists and environmental scientists necessary to design and carryout any required monitoring program.

The numbers and types of injection wells vary widely from state to state. Even though this is a national program, each state has been able to tailor the program to fit its own needs. Our next two speakers will be discussing the diversity of programs and program needs.

STATEMENT OF HUMAN RESOURCES ADMINISTRATION, CITY OF NEW YORK

The Human Resources Administration (HRA) of the City of New York wishes to thank the Subcommittee for this opportunity to recommend ways the federal government can both assist localities to serve the homeless and begin to address the underlying causes of homelessness.

There are many ways in which the federal government can provide more assistance to New York City in serving the homeless. To address the immediate problem of providing temporary shelter to almost 20,000 persons every day, we must have federal funding for capital costs and operation of homeless shelters. To address the longer term problem of preventing homelessness, the most pressing issue is additional spending for an expanded low-income housing program. Changes in the SSI and Food Stamp programs would provide the homeless with additional benefits and employment and training opportunities are needed to help the homeless become self-sufficient. This is a tall order, but until we address the basic causes of homelessness, the shelter population will continue to grow and to require greater expenditures of taxpayer dollars. We know what to do, but we cannot do it without the help of the federal government.

Homelessness is a pressing and complex problem in New York City and one which requires a rapidly increasing amount of City resources. New York City provides shelter and other services to a far larger number of homeless individuals than any other city in the country. HRA operates 21 shelters for single homeless men and women. In April, an average of 7,300 persons were sheltered nightly, a 1,000 person increase over this time last year.

New York City provides shelter to every homeless person who requests it. Our shelter program is more than a place to sleep; it includes three meals a day, clothing, mental health and medical services, transportation and outreach services, employment programs, and assistance in applying for public benefits. This year (City Fiscal Year 85), we are spending $77.2 million to operate these services for homeless adults. This cost is shared equally between the City and State with no federal contribution.

The City is also sheltering over 3,400 families, which comprise 12,300 persons. The number of families has increased by 20 percent in the past year. We accommodate these families in fifty-one hotels, four family centers and four congregate shelters. In addition to basic shelter, these families receive day care, aid in enrolling children in school, protective services, and help in relocation. To operate these services for families, the City is spending $98.8 million this year. Generally, these families are recipients of Aid to Families with Dependent Children (AFDC), so the costs are borne 50 percent by the federal government, 25 percent by the State, and 25 percent by the City.

I. Federal Causes of Homelessness

Federal policies have contributed to the growing number of homeless people in New York City and around the country. Since 1981, the City and its residents have lost more than $2 billion in federal aid. Specifically, homelessness can be traced to the virtual elimination of federal support for low-income housing, the acceptance of a high rate of unemployment, particularly in central cities, drastic cuts in employment programs, and reductions in basic benefit programs. Low-income housing is scarce in New York City. The vacancy rate is below even the 2 percent vacancy rate for all types of units in the City. This is attributable in large part to the major federal cutbacks in low-income housing programs.

The lack of affordable housing has forced many individuals and families to "double-up", sharing accommodations with another individual or family. Twenty percent of the adults in our shelters became homeless because they could no longer remain in such arrangements, and twenty percent of families seeking shelter have been evicted from shared households by the primary tenant. We estimate that another 35,000 public assistance households are currently sharing with other families, indicating that there is a huge pool of potentially homeless families.

Federal policies have also tolerated high unemployment and drastically reduced employment and training programs. Unemployment in New York City has been over

10 percent since 1981, falling below double digits only in the past year, and is now 8.9 percent. Unemployment among Blacks and Hispanics is even higher—about 13.3 percent for Blacks and 14.1 percent for Hispanics—and these groups now constitute a majority of the adults in our shelters.

With the elimination of CETA, New York City lost approximately $209 million annually in federal aid. Under the Job Training Partnership Act (JTPA) the national appropriation for adult training was reduced 38 percent, while New York State sustained a cut of 50 percent. Further, the program criteria were drawn so as to create disincentives to reaching hard-to-serve people, such as the homeless.

The high unemployment rate and lack of employment programs have significantly contributed to the homelessness problem. Eviction for lack of funds was the reason for seeking shelter cited most often in a recent HRA survey of adult shelter residents, accounting for more than one-third of the cases.

Many of the single homeless also have mental disabilities or suffer from a drug or alcohol abuse problem. Our studies indicate that the rate of psychiatric impairment, alcohol abuse and drug abuse among the men in our shelters is each about 20 percent with some overlap among the groups. Women are less likely to suffer from substance abuse but more likely to suffer psychiatric impairment.

The Reagan Administration, in its overzealous accelerated review process of social security and supplemental security income (SSI) disability recipients, terminated 20-25,000 recipients in New York State, one-half to two-thirds of whom live in New York City. Although almost half of these denials were overturned on appeal, large numbers of people truly unable to work were left without support by this process. Many of these people have turned to the shelters as a last resort.

II. Federal Response

The Reagan Administration has failed to respond in any meaningful way to the very real problems of the homeless. There has been no substantial federal contribution to the cost of building or operating shelters and no serious commitment to low-income housing has been forthcoming. New York City, with the assistance of the State, is confronting these problems, but we cannot do it without substantially increased federal assistance.

Shelter Funding

The money provided for the homeless through the federal Emergency Management Agency (FEMA) has been a "drop in the bucket." For the coming year, Congress has appropriated $70 million through FEMA for emergency food and shelter nationwide. This is slightly less than we are spending in New York City alone to shelter homeless adults. In total, all the money received by both the City of New York and the City's voluntary organizations over three federal fiscal years will come to $7.5 million, about one-tenth of what the City is spending on homeless adults this year.

The FEMA monies, prior to the current appropriation, also could not be used for capital expenditures. This is an area of particular concern to the City, as city and state funds for capital expenditures are more limited. New York City's budget for capital expenditures in the adult shelter system, a cost shared by the State, is $27.4 million this year. The National Board has generally limited the current FEMA funds to capital expenditures of a maximum of $500 per bed and $5,000 per building. This limitation effectively precludes the use of FEMA funds for capital expenditures, since the average cost of developing shelter beds is much higher.

An effective federal program to aid in the operation of shelters would require greatly increased funding and could be offered on a matching basis. Funds for capital expenditures would require more realistic limits on development costs. A number of bills have been proposed this year which would establish funding for shelters and transitional housing. We support H.R. 1 which would create such a program for three years. In addition to providing needed operating and capital funds, this approach would avoid one of the major drawbacks of the FEMA appropriations, their uncertain and irregular nature.

Low-Income Housing

The federally assisted housing budget has been cut by more than 50 percent from $28 billion in FFY 1981 to $13 billion in FFY 1984. This withdrawal from a field in which the federal government has traditionally taken leadership has created a crisis in low-income housing.

The City of New York has moved homeless people into permanent housing and created or preserved this housing wherever possible. At a cost of over $47 million, the City's Department of Housing Preservation and Development is renovating more that 4,750 units in *in rem* buildings. Virtually all of these units, 85 to 90 percent, are used to relocate families from hotels and individuals from homeless shelters. To date, about 4,350 units have been renovated. More than half of the funds for this massive and unprecedented undertaking by the City to use its vacant properties comes from the City's capital budget.

Many homeless families also find housing on their own. To aid these efforts, the City covers the cost of broker's fees, security deposits, and other expenses incurred in obtaining permanent housing. In addition, the City has initiated a demonstration project, the Emergency Assistance Repair Program (EARP), to encourage landlords to rent to homeless families. We are offering landlords four months rent at the higher emergency hotel rate in exchange for a two year lease at the shelter maximum in an apartment cleared of serious violations.

Another effort which the City has proposed to encourage landlords to rent to public assistance recipients is greater use of two-party rent checks. Many landlords refuse to rent to public assistance recipients because they believe the rent will not be paid. While some recipients voluntarily choose two-party checks, imposing such a restriction under the current federal regulations requires a cumbersome and lengthy process. We welcome the changes proposed by HHS which will permit greater use of two-party rent checks and hope that they can be quickly implemented.

Despite these efforts, the number of homeless continues to grow. We simply cannot create low-income housing quickly enough to keep pace with demand without increased aid from th federal government.

The hotels in which the majority of the homeless families are sheltered are the alternative of last resort. Although it is meant to be a temporary solution, it is fast becoming more than that; the average length of stay for unplaced families is over nine months. The conditions in the hotels are not conducive to either the efforts of the parents to achieve stability and independence or the development of the children. Yet we continue to spend large sums of money on hotels and other emergency facilities, a minimum of $1,200 a month for a family of four, compared to a maximum public assistance rent of $270 a month for the same family. It makes no sense for government to pay these enormous sums for inadequate emergency housing, but not for capital construction costs to develop a permanent solution. We urge that serious consideration be given to an expanded low-income housing progam so that these families can move into permanent housing.

Food Stamps

The Food Stamp program could be improved to better assist the homeless and to prevent homelessness.

The homeless families who are housed in temporary shelters or hotels have no cooking facilities. Therefore, they must rely on make-shift cooking facilities to prepare meals in their rooms. The federal government should permit homeless families to use food stamps in restaurants and in congregate shelters rather than buying prepared food at a store. We recommend that the law be changed to provide an exception to the definition of "food" that qualifies for food stamp purchases to include restaurant meals for homeless families as suggested by Rep. Addabbo's bill, H.R. 770.

The federal government should also increase the maximum shelter deduction in the Food Stamp program to more accurately reflect a household's actual shelter costs. Households can currently deduct only a small portion of their shelter costs in computing food stamp benefits, up to a maximum deduction of $134 a month. New York City strongly supports Representative Weiss's bill, H.R. 1844, to raise the excess shelter deduction to $175, and to separate the shelter and dependent care deductions. This would decrease the Food Stamp loss to public assistance recipients from the shelter allowance increase implemented last year in New York State which resulted in New York City recipients losing $1.00 in food stamps for each $3.00 increase in the shelter allowance, and would give food stamp recipients more disposable income for necessities other than food and shelter.

The Mentally Disabled

More assistance is needed for the mentally ill homeless and those with drug and alcohol problems. Although the State has primary responsibility in these areas, the federal government could provide greater funding for these special homeless populations through the National Institute of Mental Health (NIMH). We recommend that a program be created within NIMH to provide grants to localities for demonstration projects that serve the mentally ill homeless.

Employment

Federal funds must be made available to address the needs of the hard-to-serve unemployed, including the homeless. While some of the homeless have psychiatric histories or drug abuse problems which make placement difficult, our studies indicate that most have employment histories and a sufficient level of education and skills to make them suitable for employment programs.

JTPA, the major federal employment program, drastically reduced the funds available overall and also altered the criteria for participation in the training and placement programs. The new criteria effectively exclude people, such as the homeless, who require more intensive aid in obtaining gainful employment. JTPA emphasizes the number of successful placements and a variety of performance standards which lead program operators to select the most able and skilled among the unemployed for the program.

It is distressing to note that an increasing number of shelter clients are young people who have never had a job, but who otherwise have no significant impediments to employment. We have devised a program in our shelters to deliver intensive employment services to homeless men and women aged 18-24, which has demonstrated that this group can be successfully placed in jobs if employment services are provided. One staff person, performing both assessment and job placement, was able to place 85 persons into unsubsidized employment in less than a year.

A JTPA grant is now being used to operate a small demonstration project for both youth and other shelter clients. Participants will receive vocational evaluations, work readiness services, on-the-job training, job development, counseling, and follow-up.

These efforts must be expanded so that more homeless persons can regain economic self-sufficienty. Funding must be provided at the federal level for specialized employment services for the homeless, either within JTPA or a separate program.

Clearly, much more can be done by the federal government to assist localities both in serving the growing homeless population and in remedying the underlying causes of homelessness.

STATEMENT OF DR. THOMAS PETER BENNETT, PRESIDENT, ACADEMY OF NATURAL SCIENCES

Good afternoon Chairman Boland and Members of the Appropriations Subcommittee on HUD/Independent Agencies of the House of Representatives. I am Dr. Thomas Peter Bennett, President of the Academy of Natural Sciences in Philadelphia. I am currently serving as chairman of The Associated Natural Science Institutions, which together with the Association of Systematics Collections are pleased to provide testimony in conjunction with the appropriations hearings for the National Science Foundation, and we very much appreciate your invitation to appear before you today. We wish to express our strong endorsement of the Administration's commitment to basic research through its recommended budget for the Foundation for FY 1986. Both of our organizations strongly support the mission of the Foundation.

The combined constituencies of our two organizations represent over 90% of the institutions and individuals in the United States that study whole organisms. Together, we represent between 8,000 and 10,000 individual scientists, over 30 scholarly societies, and over 200 institutions, including museums, botanical gardens, colleges, universities, laboratories, zoos and aquaria.

Federal agencies that invest in research directed to answering specific questions pertinent to their missions (applied research) must rely on the base established by the pure research community. The National Science Foundation is the only Federal agency that is charged with underwriting pure research activities. The Foundation's outstanding record of supporting quality research programs is, to a great extent, based on its utilization of the peer-review system through which the community itself participates in the selection and award process.

We are particularly concerned about continuing strong suport for those programs in NSF that emphasize studies of animals, plants, and human history and the research resources necessary to undertake this research, e.g., biological/anthropological collections, laboratory facilities, research equipment, and computers. Of particular importance to our constituents are the Systematic Biology and Biological Research Resources Programs in the Division of Biotic Systems and Resources and the Anthropology Program in the Division of Behavioral and Neurosciences. In addition, important support has been received from the Foundation under programs in Stratigraphy and Paleontology, Biological Oceanography, and International Programs. Most of these programs are administered in the Directorate of Biological, Behavioral, and Social Sciences, a key directorate in advancing the national scientific research effort and maintaining scientific parity with other nations.

The pure biological research and the necessary physical research resources supported through the National Science Foundation are an investment in our future -- society's overhead -- that assures that crucial, practical questions pertaining to natural resources, medicine, agriculture, and the environment can be answered in a timely and credible manner. Our testimony focuses on needed appropriations in three related areas that are particularly crucial to our constituents' ability to undertake research projects and provide professional services: 1) availability of research resources, 2) long-term research in systematic biology, and 3) professional and technical personnel.

AVAILABILITY OF RESEARCH RESOURCES

Effective research programs are dependent upon the composition and availability of adequate research resources. To us, these research resources are the most important biological collections, storage cases, analytical and technical equipment or instruments, and specialized libraries. Most important, of course, are biological collections. These serve a number of crucial roles in terms of the national research effort: documenting natural diversity and environmental changes (both man induced & natural), stimulating or catalyzing new scientific inquiries, providing the means for verifying biological discoveries, identifing organisms, and providing a focus for training new professionals. These activities ultimately impact on, directly or indirectly, the well-being of every Congressional District and citizen of the U.S. To contribute effectively to these processes, the collections and the information associated with the specimens must be accessible.

Demands on these immensely valuable research resources for specimens and associated services are very high and are increasing: 80% of the collection facilities loan specimens to professionals in other institutions; nearly 80% provide identification services for professionals and the public. Collections are growing at the rate of 3% per year, based on the number of new specimens added to the collections -- specimens that are required in research projects.

The volume of material we are describing here is staggering. There are between 600 and 700 million biological specimens maintained in approximately 4,000 different collections in the United States. About 25% of these collections are located in free-standing, non-degree granting institutions such as museums, botanical gardens, and laboratories; 68% are in universities or colleges and the balance are maintained privately by individuals. On the average, only 64% of the specimens in collections are catalogued; the rest are consequently not available. Computers are used to manage specimen related information in only 20% of the collections. Of those institutions using computers, on the average only 40% of the specimen-related information has been computerized.

Moreover, it is unfortunate but true that maintenance and services associated with collections generally are performed by part-time personnel. There is, on the average, only one professional curator for every two collections and one technician for every three collections.

Faced with exploding demand and numbers of specimens and with a shortage of personnel, our institutions find it is becoming increasingly difficult to fulfill their major and growing responsibilities to the research community, and hence to serve the national interest. The problem of inaccessibility of the nation's research resources is exacerbated as degree granting institutions, in the face of declining enrollments, attempt to transfer the trusteeship of natural science collections to museums or botanical gardens.

Because these resources are vital to the nation -- to scholarship, to research, and for practical applications -- NSF has an obligation and a mission to help maintain the collections and to foster their accessibility. We urge your support for this.

We are pleased with the role the Biological Research Resources Program is performing in response to these issues and strongly endorse its continuation. NSF's Biological Research Resources Program has been vital in upgrading collections and incorporating university collections that have been given to the research museums. This program is of vital significance for protecting the nation's biological collections and making them available for the many uses indicated above. We strongly endorse its continuation at the present funding levels.

Within the structure of this program we recommend appropriation of additional funds for:

1. Computer applications.-- Hardware, software, and personnel are desperately needed to catalogue the backlog of specimens presently in collections that are not available because they have not yet been inventoried. Studies and pilot projects must be initiated to determine the feasibility of developing a national network for species information -- a necessity if we are to address the most fundamental questions regarding natural diversity. To assure that all collections at an institution benefit from such investments, the program should have an institutional focus. We estimate that $2 to $3 million per year over the next ten years would provide significant assistance in responding to the need for computerization and networking.

2. Acquisition of analytical and technical equipment.-- Non-degree granting museums and botanical gardens have been unable to participate in funding programs at the Foundation that are designed to upgrade and replace scientific equipment necessary for training new professionals and undertaking research programs. The Biological Research Resources Program presently provides funds for instruments and technical equipment in biological field stations and marine stations. This program element should be expanded, with increased funding, to include research museums and botanical gardens. We recommend an additional $2 million per year for the next five years for this purpose.

Similarly, the utility of our anthropological collections to research is threatened by a shortage of funds. These collections represent the material, objective evidence of vanished and disappearing societies -- evidence that can not be duplicated or replaced. Conservation, preservation, and accessibility are crucial issues to anthropological collections as well as to biological collections. They too would benefit the nations' research effort more effectively with computerization, networking, professionally trained personnel, the acquistion of equipment, and the improvement of storage facilities. The approximately $500,000 available for such collection based endeavors through NSF's Division of Behavioral and Neural Sciences should be dramatically increased.

LONG-TERM RESEARCH NEEDS IN SYSTEMATIC BIOLOGY

Systematic biology is the classification of organisms; the study of the relationships of organisms. It is a dynamic science that serves as the foundation upon which most other biological sciences are built and inquiries pursued. With the application of technologies from such diverse fields as mathematics, chemistry, physics, engineering, and computer science, systematics is enjoying a renaissance. Scientific names given to organisms by systematic biologists imply particular relationships with other organisms. However, the names are not fixed. As biologists learn more about organisms, the classification may change and the organism's scientific names may change to reflect this new knowledge. This is important because our ability to achieve and repeat results in all research in other branches of biology (e.g., ecology, physiology, behavior, genetics, biochemistry) depends on identifications and classifications provided by systematic biologists as a consequence of their studies of species and species relationships.

Of direct national interest is the fact that the United States is the only industrialized nation in the world that does not have an integrated national program for documenting its fast-changing flora and fauna. Such a project will entail five to ten years to be effective. Yet today, most professionals, out of necessity, undertake relatively short-lived research programs that will result in the greatest number of published articles. Unfortunately, such studies for the most part do not provide sufficient depth to clarify our understanding of larger groups of organisms. From the scientific community's perspective, to fulfill our responsibilities to the public, it is essential that mechanisms be provided to support both a national survey and other long-term research projects that will result in large-scale taxonomic revisions and monographs.

It is only through investment in both revisionary studies and large scale surveys that we will be able to synthesize our current knowledge of groups of organisms, thereby making higher level, process oriented inquiries more cost effective in such fields as ecology, pest-control management, genetic engineering, etc. Besides identifying the biota that have been heretofore unknown, data derived from such surveys will allow the community to be far more responsive to the public questions we are being asked.

We recommend establishment of a Long-Term Organismic Studies program element within the Systematic Biology Program. (This area of emphasis would be similar to that established under the Ecology Program that provides focus for long-term ecological studies.) Under this program element, institutions or consortia of collaborating facilities could apply for support to address longer term research problems that are not feasible for a single individual. By emphasizing institutional rather than individual support, the administrative structure necessary for such large scale projects would not have to be developed; there would be a larger pool of professionals available to contribute to the project; and, information emanating from the studies would be managed in a more cohesive manner. An estimated $2.5 to $3 million would be needed to initiate this program and would provide support for 10 to 12 institutions; ongoing support would subsequently be required.

PERSONNEL

Recent data indicate systematists themselves are becoming an endangered species, with the number of professional positions decreasing. At the same time the number and diversity of organisms to be studied is mounting rapidly. From the standpoint of the public's need for information about organisms and their relationships, and with continuing concerns about environmental issues, there is an obvious need to increase the supply of qualified personnel working within the field.

Here the NSF can perform a leadership role in addressing this problem. We recommend establishment of a new program in the Division of Biotic Systems and Resources entitled Career Enhancement in the Biological Sciences with an initial funding level of $2.5 to $3 million. This level of support would provide funds to 10 to 15 institutions for three to five years. Degree-granting institutions, or regional consortia of universities in collaboration with museums and/or botanical gardens, could obtain funding for doctoral students, post doctoral positions, mid-career research activities, and preeminant senior researchers. Such support would attract and retain a small number of the very best minds to a critically important scientific field.

We are grateful to the Committee for giving us this opportunity to express our views. If the Committee should desire further information or data, please contact my office or that of Dr. Stephen Edwards of the Association of Systematics Collections.

STATEMENT OF LYNN ARTHUR STEEN, PRESIDENT, MATHEMATICAL ASSOCIATION OF AMERICA

As the national debate on education has unfolded in recent years, one theme has recurred within the scientific and mathematical communities--that research scientists have largely abandoned their responsibilities for leadership in education. This concern has led the Conference Board of Mathematical Sciences to bring together mathematics teachers and mathematics researchers for the common purpose of improving mathematics education.

This process takes time, but is now on the verge of leading to a significant initiative for a national Board on Mathematical Sciences Education under the auspices of the National Academy of Sciences. Other cooperative but more specialized efforts are moving in parallel, to address problems of curriculum redefinition, teacher training materials, technology, and testing.

I am concerned that just as the mathematical community is prepared to respond to the national concern about mathematics education, short-sighted budget decisions may once again--as they did several years ago--undermine the whole endeavor. Education requires consistent, long-range support related to long-range objectives.

I speak for the Mathematical Association of America (MAA), an organization of nearly 20,000 college and university mathematice teachers. We are the principal organization linking the teaching and research communities in the mathematical sciences. The focus of our work is collegiate mathematics--to prepare students for precollege teaching, for post-graduate study and research, and for business and industrial careers.

We are concerned with two aspects of the proposed N.S.F. Science and Engineering Education budget: the severe reduction in baseline for precollege activities, and the insignificant allocation to collegiate science and mathematics education. I'll address each of these two issues in turn.

Precollege Mathematics Education

What happens in mathematics education at the precollege level sets the level of science, engineering and mathematics for the nation. If students arrive in college unprepared in mathematics, they cannot continue in science or in engineering or in most other professional degree programs without costly and usually ineffective remedial work. The proper place to learn school mathematics is in school, not in college.

As part of the development effort leading to the proposal for the Board of Mathematical Science Education, we identified dozens of projects to improve school mathematics that are just now becoming ready for funding. Some have been submitted within the past few months; others will be submitted in the near future. These projects represent coalitions of individuals in schools, universities, and professional societies; they are the best hope our nation has for improving school mathematics.

These proposals in mathematics alone can easily consume more than the $19 million baseline proposed for precollege education in the N.S.F. budget. Surely there will be corresponding national projects in science and technology education of equal scope. If the FY86 NSF baseline for precollege education is reduced to $19 million, anticipation of similar absurdly low levels in the future will dry up all these promising projects. You can't simply turn good projects on and off like water in a faucet. For the long term health of precollege science and mathematics education, I urge you to maintain for FY86 and beyond a reasonable baseline for precollege projects.

Collegiate Education

Mathematics education is a continuous, sequential process from primary school through graduate school in which changes in any part have significant consequences throughout the entire system. Undergraduate mathematics is a major conduit for the education of scientific and business leaders. Some college mathematics or statistics is required for virtually every professional degree program. Yet mathematics is changing dramatically--in content, in scope, and in application. Mathematics is not just being applied, but is being continually created.

As mathematics needs to be continually created to provide new tools for science and industry, so the undergraduate curriculum needs to be continually renewed to reflect the changing nature of mathematical practice and scholarship. Yet the limited resources of undergraduate mathematics departments are now thinly spread over an enormous variety of elementary courses. Collegiate mathematics must provide courses for future scientists, programs for prospective elementary and secondary school teachers, remedial courses for those entering college unprepared in mathematics, general education courses for students not majoring in a quantitative discipline, strong majors for those intending to enter graduate school, and a variety of service courses ranging from elementary statistics to advanced operations research. Moreover, in most institutions, mathematicians must also teach computer programming and elementary computer science. The strain of meeting these diverse obligations leaves virtually no time or energy for the in-depth study necessary to renew faculty initiative or to develop innovative programs.

Signs of strain are everywhere. Nearly two-thirds of college freshmen are not prepared to study college mathematics, being required instead to take or retake some parts of school mathematics. During the last 15 years, total undergraduate enrollments in mathematics have doubled, but enrollments in advanced courses have been cut in half. Now fewer than 5% of undergraduate enrollments are in post-calculus courses.

Bachelors, masters and Ph.D. degrees in mathematics have declined by over 50%. Fewer than 60% of the Ph.D. degrees granted by American universities in the mathematical sciences goes to a U. S. citizen. Projected faculty retirements coupled with vigorous demand for mathematical scientists from the nation's supercomputing endeavor virtually insure that the United States is facing a serious shortage of mathematicians just as demand for mathematical knowledge is at record levels.

Modern mathematics is repeatedly being pressed into service by modern science. Proper curricular response will multiply the linkages between mathematics and other disciplines. No longer are the concepts of mathematics used only in physics and engineering. Now they can be found in linguistics, medicine, psychology, agriculture, music--virtually every subject taught in an undergraduate curriculum. The connections between mathematics and other subjects are often mediated by computer science, but real mathematics always lurks immedately beneath the surface.

For the sake of our students, we must revitalize collegiate mathematics by infusing the undergraduate years with the spirit of contemporary mathematical activity. We must encourage mathematics faculty to become active users of sophisticated computers. We must support exemplary programs that encourage students to major in mathematics. We must encourage creativity in developing programs for prospective school teachers as well as for prospective scientists. We must recognize that undergraduate mathematics has become a laboratory science, with computer methods required in virtually every course in the curriculum. And, perhaps most of all, we must encourage and support those who provide effective courses in "mathematical literacy" for future lawyers, politicians, and citizens.

For the rest of this decade mathematics departments will continue under great stress. We live in the shadow of computer science, the glamour stock of academia. In contrast to computing, mathematics appears as a cerebral abstraction, isolated from reality. Yet industry is hiring mathematics graduates as never before; society is pressuring the schools to stress mathematics; and the scientific research community has endorsed mathematics as one of the priority areas for support in years ahead.

With declining numbers of students entering colleges, demand for mathematically trained individuals will greatly exceed supply. If we do not encourage renewal in collegiate mathematics, we run the risk of shortchanging virtually all sophisticated scientific research and business innovation. It is vitally important that the N. S. F. budget provide adequate baseline support for collegiate science and mathematics both for instrumentation and for curricular renewal. $5 million is far too low even to meet the legitimate needs of scientific instrumentation, much less to allow for curricular renewal.

In summary, I urge that you budget adequate baseline support both for precollege education in science and mathematics, and for collegiate programs of both instrumentation and curricular renewal. Moreover, the baseline should be set and maintained from year to year, to encourage stable programs of high quality.

STATEMENT OF THE AMERICAN SOCIETY FOR ENGINEERING EDUCATION

The American Society for Engineering Education welcomes this opportunity to comment on the proposed Fiscal Year 1986 budget of the National Science Foundation. We are delighted to speak in strong support for the overall NSF proposal crafted by the Administration. The FY86 agency request represents a much-needed investment in the talent and research which comprise U.S. technology. In addition, recent attention to the engineering activities of the Foundation have produced exciting changes and we appreciate the chance to laud the direction in which those changes are leading.

ASEE's membership is drawn from over one hundred major employers of engineers, several government agencies, the national engineering societies, the more than 250 accredited engineering schools of the nation, and over 10,000 individuals, many of whom are engineering faculty and students. Our members are bound together by a deeply rooted concern for the health of the country's engineering education enterprise.

ASEE is delighted to witness a blossoming public recognition of the rich contribution which engineering makes to our lives. The fruits of engineering improve our already unmatched standard of living, strengthen our economy, enhance U.S. competitiveness abroad, and provide for a strong national security. As the world moves swiftly and surely into reliance on the gifts of high technology, engineering will play an ever more pervasive role in daily living. Personal computers used by millions, life-enhancing medical technology, new and stronger materials, and vital communications systems are only a very small sampling of the countless ways in which engineering already shapes our world and will continue to do so in the future.

These blessings will not come to us without effort. Well-trained people with imaginative ideas and the tools to realize those ideas will be needed in increasing numbers by the end of this century to maintain these highly-desirable products of our engineering enterprise. Such innovators do not materialize without hard work or without the support of those who will most benefit from their endeavors. To make the American dreams of tomorrow come true demands a commitment today to strengthening every link in the innovative chain which produces U.S. technology.

The engineering "link" of that chain is only as strong as is the active recognition of the complementary partnership of science and engineering. Too often engineering is miscast as a subset of science rather than understood to be a distinct field with over a score of fully-developed disciplines, each of which generates new knowledge. This inaccurate characterization masks the inherent synergism between the two fields. Enlightenment in one often opens the door to discoveries in the other. Together they advance the pool of knowledge available to solve human problems. If we are to make the very best use of our resources to advance U.S. technology we must promote this partnership to the fullest extent possible.

Only recently has attention been focused on the problems facing the engineering "link" of the innovation chain. Mounting pressure on the country's engineering schools to meet industry's and government's needs for well-trained, highly-talented engineers threatens to undermine our already overburdened education system and, by extension, the strength of U.S. engineering. If the nation's engineering component is weakened, the entire innovation process is weakened.

The problems faced by engineering schools are as complex and diverse as the schools, students, faculty, industry and government which compose the enterprise. Several concerns, however, seem to cut across individual difficulties to capture the attention of those who have a tangible stake in the state of engineering education.

A continuing shortage of qualified engineering faculty poses a grave threat to the ability of schools to maintain both the quality and quantity of needed engineering graduates. Latest figures from 1983 estimate a faculty vacancy rate of 8.5% -- which translates to an even bleaker 23% when one accounts for the quantity of faculty needed to restore the student-faculty ratio of the 1960's. Initial assessments of the factors exacerbating the shortage cite obsolete university facilities and equipment in laboratories, the lure of higher pay and more advanced equipment in industry, burgeoning undergraduate enrollments, the high cost of graduate education, and burdensome faculty administrative duties as disincentives for young, bright graduates to pursue academic careers. Unless these conditions are reversed, engineering schools stand to lose out on bidding for the finest minds to teach and to conduct the fundamental engineering research which sustains the schools and U.S. technology.

Following are a few facts which highlight several problems facing engineering schools:

- While student undergraduate enrollment in the past decade has doubled, the number of engineering faculty has increased by only 10 percent;
- The disparity between student and faculty growth has resulted in a 32% increase in the student-faculty ratio over the last decade;
- The number of engineering doctoral degrees awarded to U.S. citizens by U.S. universities declined dramatically over the last decade, while the number of such awards to foreign nationals by U.S. schools has risen, now accounting for about 40% of all engineering Ph.D.'s.

- In 1983, of the total 18,540 full-time Ph.D. candidates in engineering, 7,687 were foreign nationals;

- Demographics project a 17% decrease in 22-year olds by 1990. This decrease will further limit the pool of engineering students who will continue on to the Ph.D. and ultimately choose academic careers;

- Studies of equipment shortages in engineering schools carry estimates up to $2 billion to bring university labs up to industry standards;

- An Association of American Universities report to the National Science Foundation in 1980 concluded that equipment used in top-ranked universities has a median age twice that of instrumentation available in leading industrial research laboratories;

- A recent study by the National Science Foundation found that 43 major research universities classified their equipment as 25% obsolete and only 16% state-of-the-art;

- In reponse to the need for interdisciplinary engineering research support, a new program for Engineering Research Centers was initiated by NSF in FY85. Half of the country's engineering schools submitted proposals, but a $10 million funding ceiling limited awards to only six schools.

Clearly our engineering schools are in trouble. Unless swift and decisive action is taken to relieve these problems, the field of engineering and the future of the nation's technological achievements will be sorely diminished.

Industry is beginning to recognize the need to help engineering schools. It sees that the problems faced by the schools will lead inevitably to poorly-prepared graduates unable to contribute to industry's needs. Cooperative arrangements which are mutually beneficial to companies and to universities can be expected to flourish in the future as both communities appreciate fully the importance of a unified effort.

ASEE has underway a project which exemplifies this growing cooperation between industry and the university community. Launched in the fall of 1984 with the support of 26 major corporations, the Quality of Engineering Education Project (QEEP) is bringing together over forty industrial and academic minds to tackle four areas critical to the health of engineering education. Task forces of eight to ten corporate and university members each have been charged with addressing one of the following factors: the state of undergraduate laboratories, preparation for the teaching of engineering, continuing professional development for engineers and engineering faculty, and the use of educational technology. As each task force defines, examines and debates its topic over the next eighteen months, bridges between industry and schools will be forged and reinforced by lively exchanges of perspective and expertise. The end result in the summer of 1986, we hope, will be a deeper understanding of the needs of both industry and academe and a plan of joint action to satisfy those needs.

For the federal government, too, there is an important and an appropriate role in strengthening the nation's engineering education system. For example, the NSF plays a vital part in supporting through fellowships the graduate students who will become tomorrow's young faculty. Research grants also sustain faculty and contribute to equipment and facilities needs. These are integral to the health of our schools and should be continued and strengthened where possible.

One major area of weakness, however, has not been fully addressed by either industry or government -- the support of fundamental engineering research. Support of such research is weak and inconsistent, to a large extent due to misperceptions about the nature of the research. Because it is substantially generic in nature -- without specific application or a goal of product development -- industries seldom can commit themselves to the long-term support of fundamental engineering research. However, the discoveries revealed through the research underpin the entire engineering enterprise by introducing new processes and systems which may spark specific innovations.

Government, too, has been hesitant in its support of fundamental engineering research, perceiving it to be commercialization-oriented, and thus appropriately the responsibility of the private sector. Increased understanding of the generic and long-term goals of fundamental engineering research, however, is beginning to filter through the government support network.

These misperceptions by both industry and government have been unfortunately detrimental to developing to its fullest potential the engineering "knowledge base" upon which technology rests. Underinvestment in this research also affects a particularly important component of the engineering education enterprise -- students. Through research support in the schools students learn to work with the equipment, processes, and innovative ideas which they will later try to develop into products in industry. Without educated people -- talent -- U.S. technology will come to a standstill.

The academic engineering community has been heartened by the recent activity at the National Science Foundation. Increased recognition of the role of engineering at NSF bodes well for making the most of the valuable partnership of science and engineering.

Specifically, we are delighted to see that the budget request for the National Science Foundation for Fiscal Year 1986 includes language which will enhance the Foundation's ability to support engineering. As you know, the NSF currently supports engineering without the benefit of a specific mandate to do so. Last year, ASEE spoke as part of the national Engineering Education Task Force, together with the National Society of Professional Engineers (NSPE) and the National Association of State Universities and Land Grant

Colleges (NASULGC), in strong support of language to provide the Foundation with specific authority to lend its expertise to engineering. I believe that this language is a very important step in providing the stable and secure home for engineering on the federal level which will promote the best use of our national engineering resources.

Secondly, the reorganization of the Engineering Directorate has great potential for allowing NSF to be responsive to both the emerging and traditional needs of fundamental engineering research. Although time is needed to maximize the new arrangements, the changes should ultimately enhance our ability to compete globally in critical technologies, to meet our high goals of quality and productivity, and to provide an environment which may foster much innovation.

Thirdly, the strengthening of the Engineering Directorate's budget continues to be extremely important. After years of benign neglect, the newly developing engineering component of the NSF needs to grow. While we recognize the imperative to reduce our federal deficit, and also wish in no way to advance engineering at the expense of science, we nonetheless strongly believe that the growth curve of the Engineering Directorate must continue its positive trend if we are to achieve our most fundamental goals. Engineering still garners only approximately 10% of the Foundation's budget despite recent improvements in funding in the Engineering Directorate.

The National Science Foundation clearly is in an excellent position to address some of the problems sketched above on behalf of one important stakeholder in the health of U.S. engineering -- the federal government. While no one program or agency can hope to fulfill every need, the attention which NSF is able to give to instrumentation, to vitally-needed fellowships, and to multi-disciplinary research efforts provides a conduit through which federal resources can be leveraged efficiently and with great effect. If NSF's considerable expertise in promoting the finest in the sciences in applied to the needs of engineering, we are confident that we will see palpable, if partial, solutions to the troubles which plague us.

We urge you to give your full support to the thoughtful NSF budget package placed in your hands by the Administration. In tandem with the fine helmsmanship of Director Erich Bloch, the FY86 budget request for the NSF presents an unparallelled opportunity to invest a relatively small sum of federal dollars to obtain the best in U.S. science and engineering.

Thank you.

STATEMENT OF THE FEDERATION OF AMERICAN SOCIETIES FOR EXPERIMENTAL BIOLOGY

FASEB appreciates this opportunity to comment, for the record, on the Administration's fiscal 1986 budget request for the National Science Foundation (NSF). FASEB is a nonprofit organization whose purpose is to develop and disseminate new knowledge in the life sciences through its meetings and publications. The approximately 28,000 members of the Federated Societies represent all the important research, educational and clinical centers throughout the United States. Over the years FASEB has counted some 106 Nobel Prize winners among its membership.

FASEB supports, at a minimum, the Administration's fiscal 1986 request for NSF of $1,569,400,000, a 4.4% increase over fiscal 1985. We note that this total includes $1,397,800,000 for research and related activities, a 7% increase over fiscal 1985. Although cognizant of current budget constraints, we believe an increase in funding is justified in light of the benefits to all Americans from scientific research.

FASEB is especially supportive of at least the proposed $9,300,000 increase in biotechnology research funding spread throughout the Biological, Behavioral and Social Sciences Directorate, the Engineering Directorate and the Mathematics and Physical Sciences Directorate. Biotechnology is rapidly becoming a key factor in the battle against disease. It also is a new industry in which U.S. excellence gives our country an important competitive edge which we wish to maintain. The further development of this discipline requires continued adequate support from the federal government.

FASEB also supports, at a minimum, the proposed 8% increase in funding for the Biological, Behavioral and Social Sciences Directorate (BBS) to the level of $272,100,000 million. Within BBS all biology programs show growth under the proposed budget. Specifically, the Cellular Biosciences program is increased by 7%, the Molecular Biosciences program is increased by 5% and the Biotic Systems and Resources program is increased by 8%. Sufficient federal investment in the basic life sciences is essential to preserve the momentum of research at a time when the scientific community is poised to take advantage of significant opportunities in a number of areas.

FASEB urges your Subcommittee and Congress to continue the longterm investment in the health and productivity of the nation by supporting at least $1,569,400,000 for NSF in fiscal 1986.

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